Smithsonian

December 1992

Piero della Francesca

A look at the timeless art of the Italian master 500 years after his death (p. 122)

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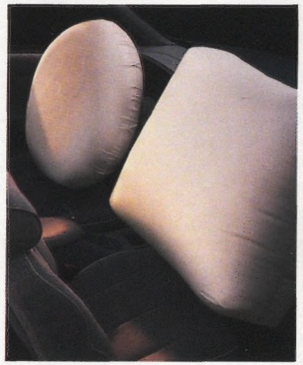

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Volume 23, Number 9

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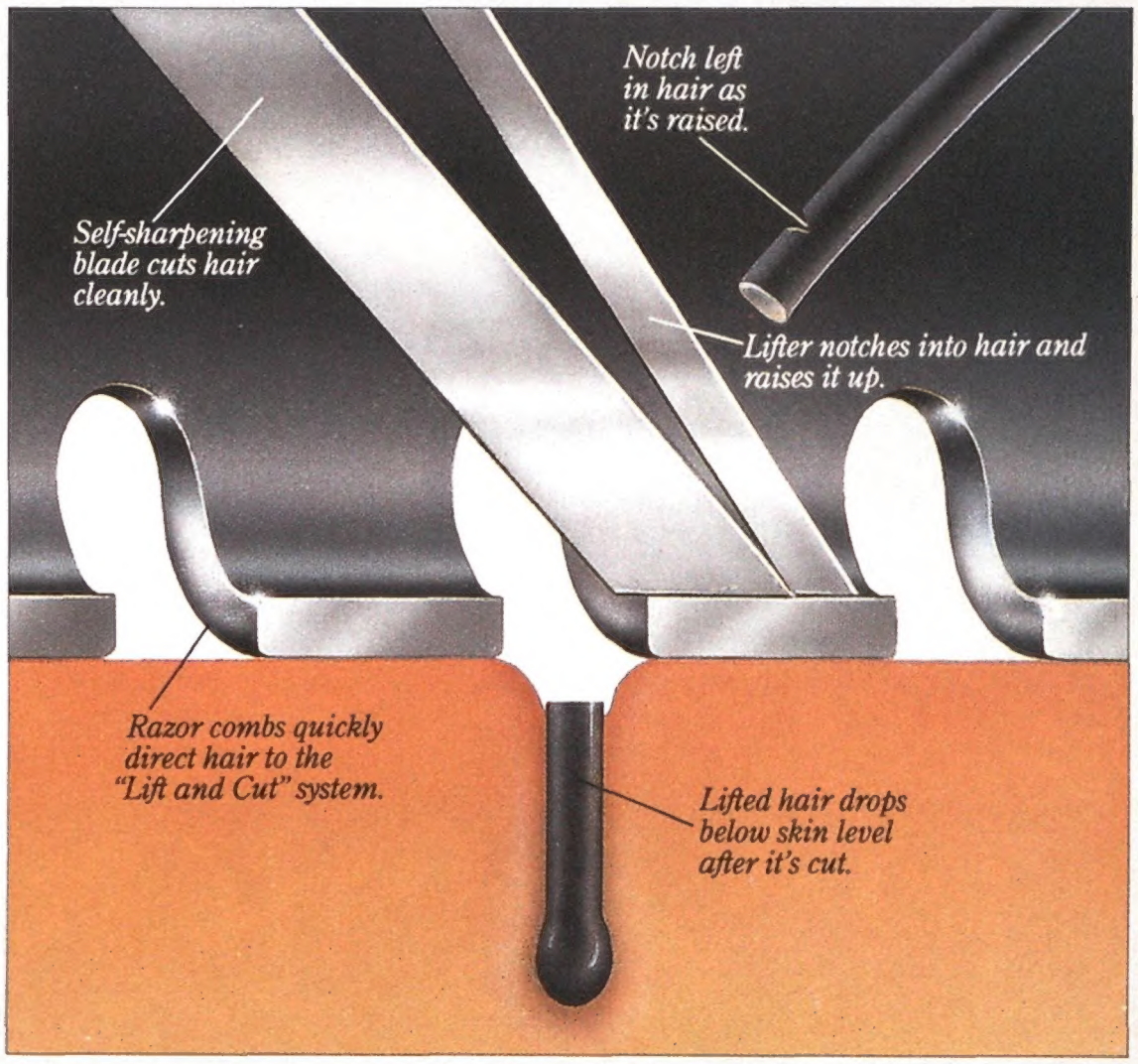
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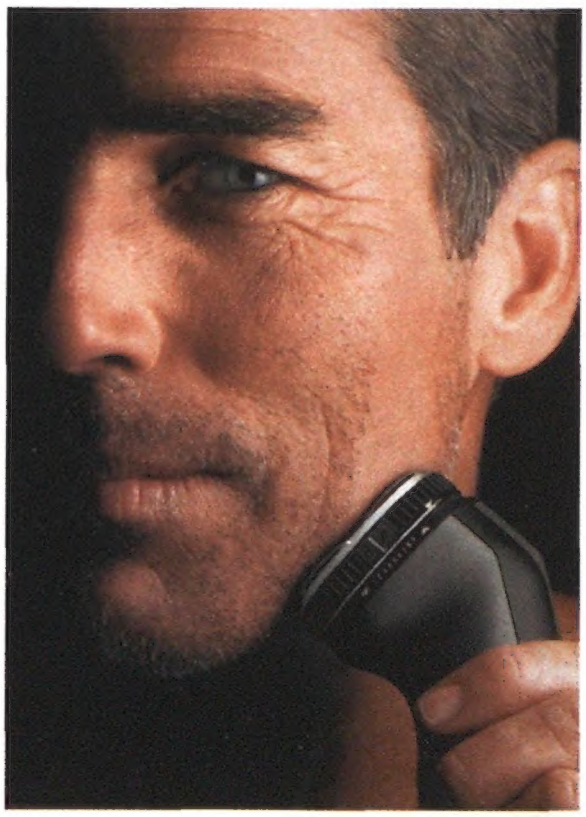

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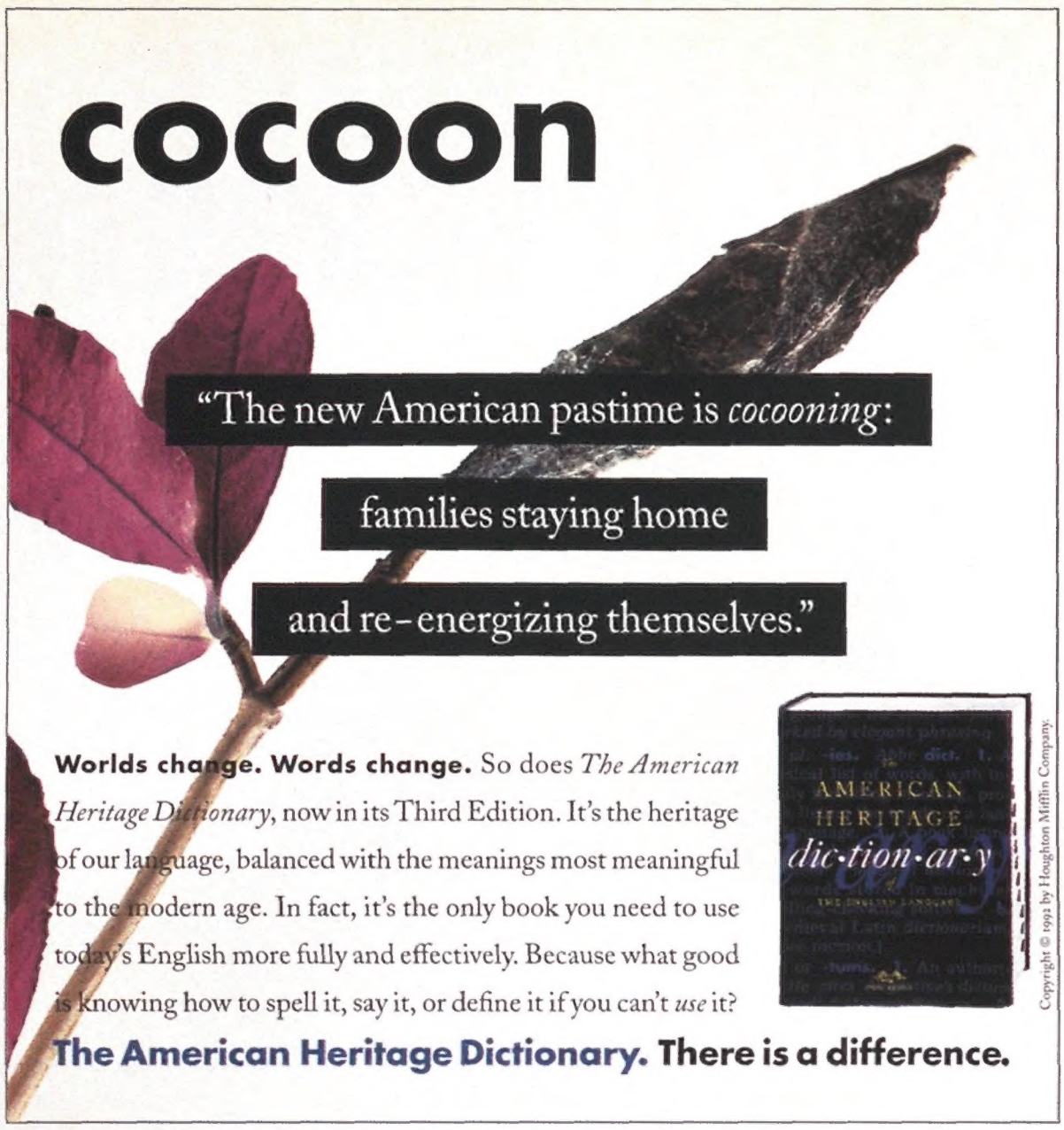
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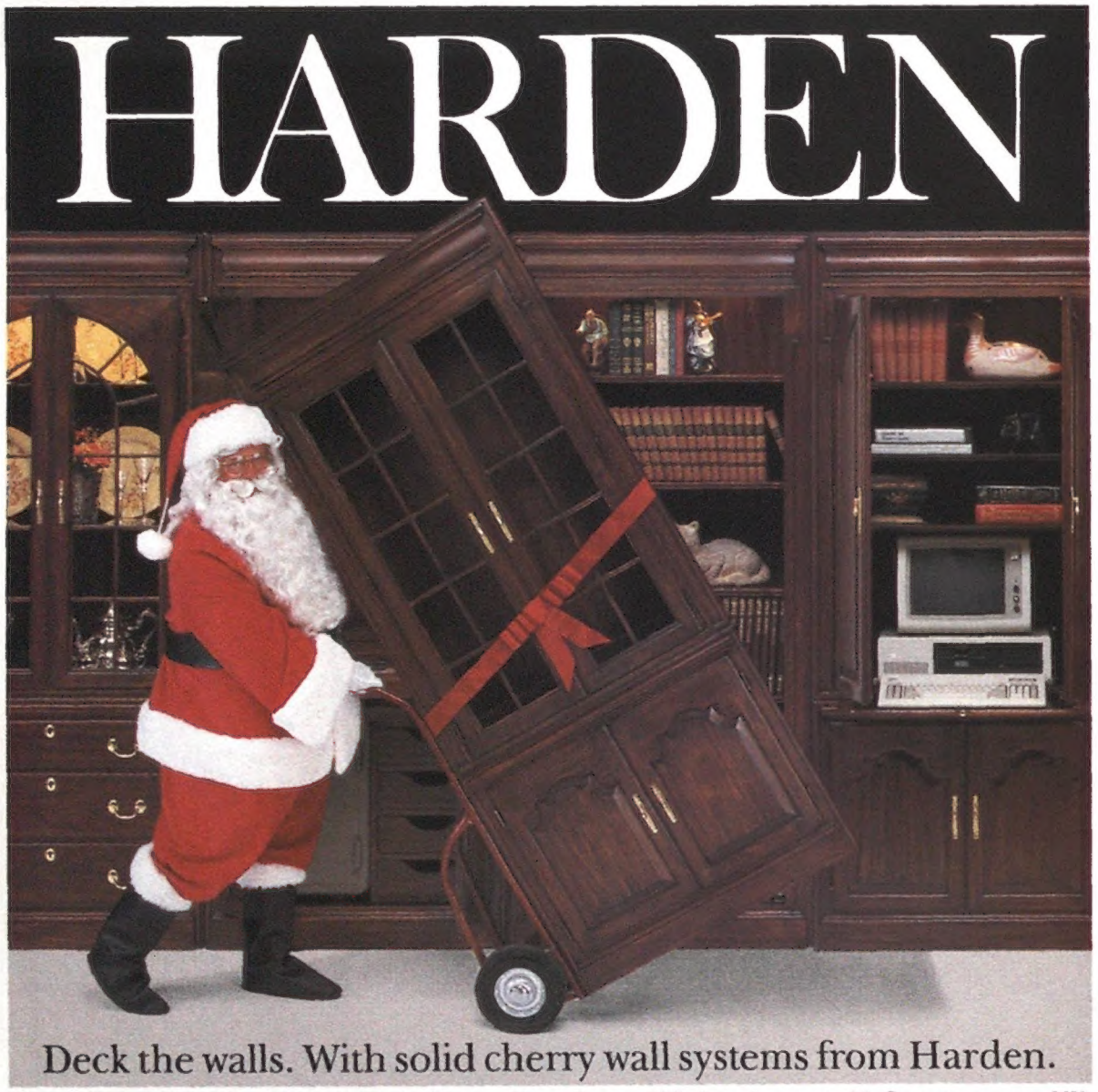

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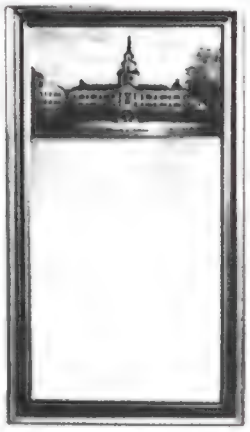

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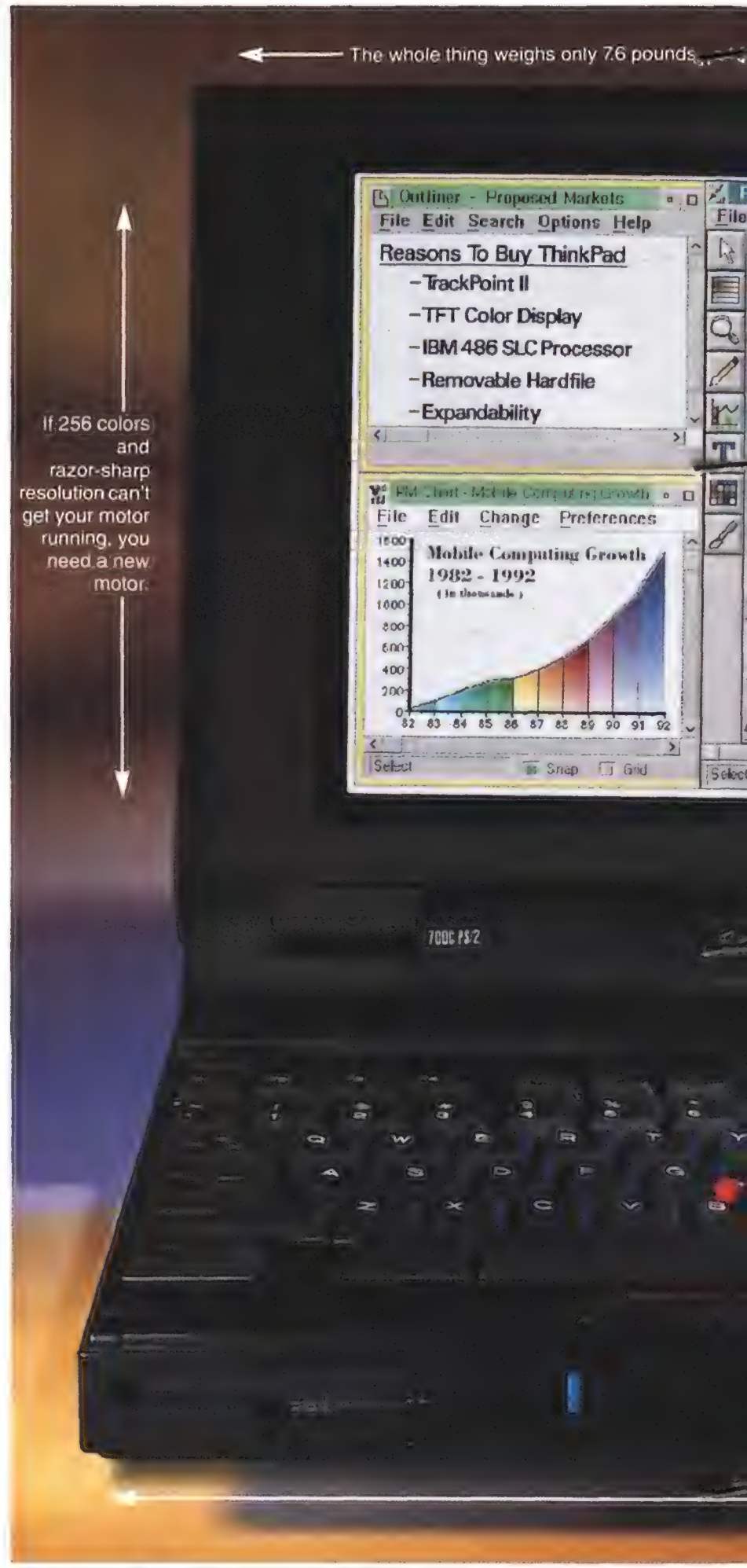
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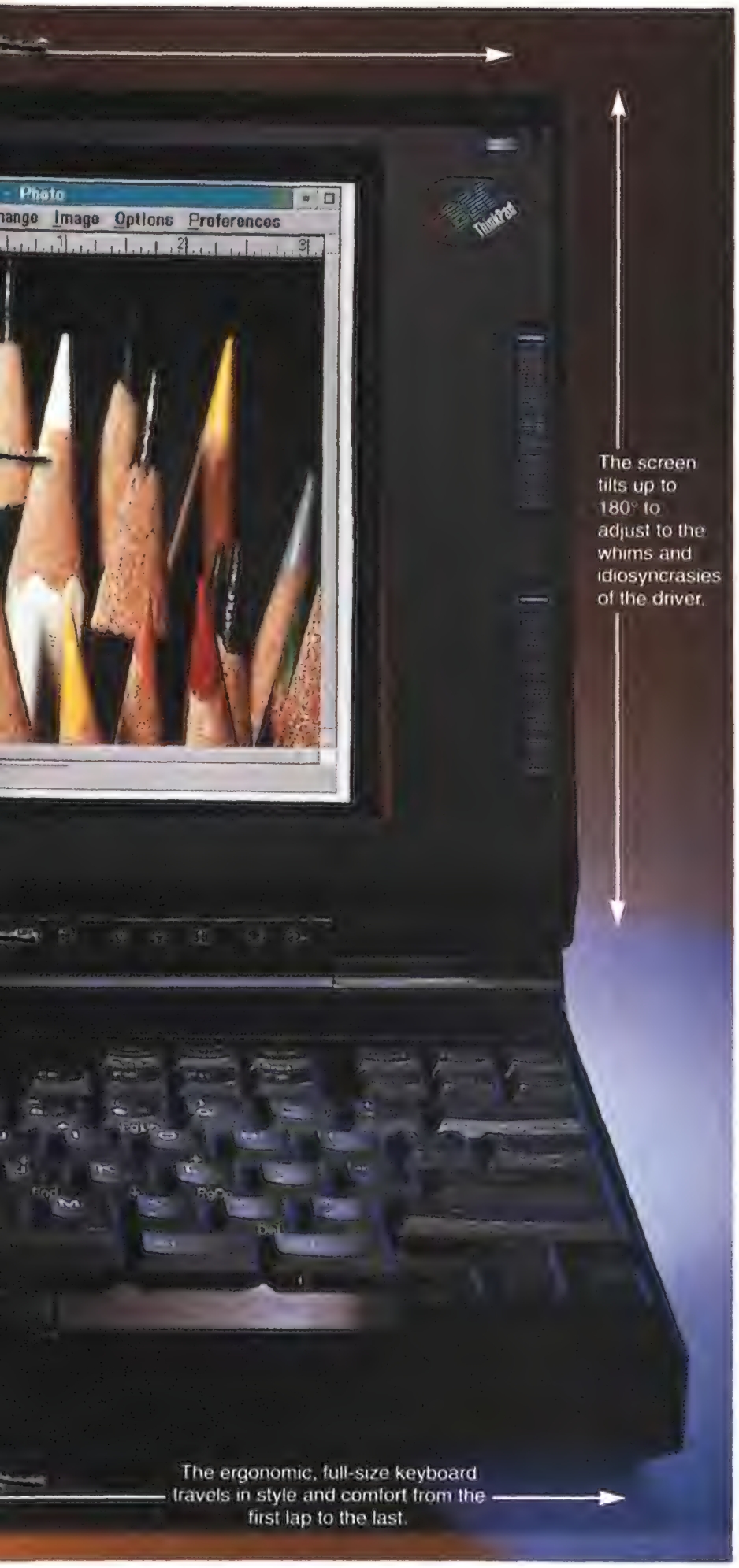
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Secretary Adams' comments

Smithsonian horizons

The burgeoning of world population has left many in poorer countries below the minimum subsistence level

The world's population of nearly 5.5 billion people is almost six times larger today than it was at the outset of the Industrial Era two centuries ago. Concern over this enormous growth entered only fleetingly into the public proceedings of the Earth Summit in Rio de Janeiro this past June, although it was reportedly the focus of many conversations behind the scenes. Surely a factor in the official neglect of the issue was the political sensitivity of population control measures, especially in the United States, for on almost any reading the numbers are chilling.

Direct measures of population control would, however, have only a delayed effect on subsistence shortfalls where they are currently critical. Particularly in less developed countries (LDCs), often characterized as the "South," a high proportion of the population tends to be very young, so that the number of births will continue to rise for some time even if *birthrates* can be induced to fall. And for the next two decades or so, even a sharp reduction in prospective births would not reduce the subsistence needs of those already living.

The closely approaching threshold of absolute impoverishment that Thomas Malthus grimly envisioned at the outset of the Industrial Era, as a consequence of population growth outrunning humankind's ability to produce enough food, of course never materialized. Productivity-enhancing capital investment, as well as scientific and technological advances, enabled the leading industrialized countries to more than match their rising demand. Population at first rose rapidly during this process, but then leveled off. That pattern, a braking of population growth while economic development continues to leap forward, is still being replicated in China, Mexico and a few other countries. But it is not at all clear that this *general* end is even theoretically attainable before the world's present population has at least doubled again.

To be sure, almost a half-century of rapidly rising population since World War II has seen the achievement by some LDCs of unprecedented levels of per capita income, literacy and life expectancy. With better-defined property rights, larger and more integrated markets, and the Green Revolution, agricultural productivity has—until recently—outpaced population growth even in some of the world's most densely populated countries. But such gains have now leveled off, and the worldwide capital flows that might reinstate them through investments in crop or land improvements are running strongly away from many LDCs rather than toward them. It can only be an article of faith that scientific and technical progress will indefinitely produce disproportionate returns as the demand for resources intensifies.

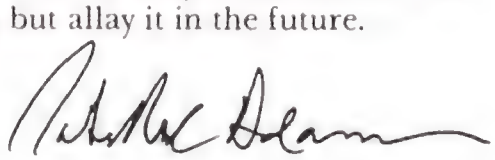
In spite of those few heartening exceptions, the gap between the developed (the "North") and most of the developing world is not closing but widening. Some authorities even argue that, at North American living standards, the carrying capacity of the Earth would be no more than half the numbers we have today.

Natural resources other than land further cloud the issue, but not to the LDCs' overall advantage. Arguments that supplies are sharply limited, so that prospective cutoffs would precipitate crises, encounter the difficulty that prices for most raw materials extracted in the South have long drifted downward rather than risen. Dwindling reserves in the South apparently stimulate the North toward further prospecting, more economical use and processing methods, and replacement with cheaper, more plentiful substitutes.

That does not apply to the long-term availability of supplies of and substitutes for oil and natural gas. But at least in this country, the threat of an eventual cutoff has certainly not yet been great enough to stimulate a change in taxing or pricing policies and, consequently, behavior. Do the planners know something that markets do not, or vice versa? Clear instances of an imminent, Malthusian margin of overexploitation are in any case rare.

Thus it is no surprise that the Earth Summit marked the transition from East-West to North-South as the world's dominant axis of tension. With four-fifths of the world's population, the countries of the South account for a sixth or less of its economic output. A billion people there, in round numbers, fall below minimal subsistence standards. While there is hardly an absolute, causal linkage with grave social dislocation and violence, it cannot be wholly coincidental that two of the most seriously overpopulated countries in this hemisphere are Haiti and El Salvador.

We must not forget that hunger and poverty are vast and tragic forces in the world as it is. One estimate is that they are principally responsible for the deaths of some 13 million to 18 million people annually, almost all of them in the South and most of them children. This calls for emergency assistance, often, as in Somalia, under conditions that almost defy the imagination. On a longer view, whatever measures the North can take to promote agricultural and economic development in the South will not only reduce current suffering but allay it in the future.



Letters to the Editor

Croquet

Dear Sir: An addendum to your October article: H. G. Wells, grandfather of science fiction, published a delightful sports and ghost story titled *The Croquet Player* in 1937, when in his 70s. Wells blends memories of his childhood in Bromley, Kent, with his adult musings. The ghost story element keeps it spooky and suspenseful. It is a book worth seeking out for anyone who has ever wielded a wooden croquet mallet.

Chuck Simon
Omaha

Dear Sir: Your comparison of croquet to billiards would have been more aptly applied to the derivative game of roque, which I played for a number of summers at the Chautauqua community north of Alton, Illinois.

Roque was played on a packed clay court with two pegs and the usual number of wickets, bordered by a four-inch-high concrete curb, permitting wicked one- and two-cushion carom shots. The combination of a fast surface and caroms intensified the competitive spirit.

D. O. Cardwell
Shreveport, Louisiana

Dear Sir: A croquet match at which I was an observer took place in the mid-'50s when our son, Don, was active in a Boy Scout troop in Burbank. Our scoutmaster, a dynamic ex-Navy man, held a barbecue at his home for Don's patrol, which had won a merit badge competition. I was invited to attend. Prior to the barbecue there was a spirited and noisy game of croquet. After supper the boys wanted to play another game, but it was after 9 P.M. and there

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were close neighbors. After much pleading, at last permission was given to play, providing the boys agreed to make nary a sound. Otherwise the game would be summarily terminated. Did you ever see eight teenagers play croquet without a sound? Players were threatened silently, with mallets and wild arm swings, but the game went to completion.
Leo Grizel
Oakhurst, California

Orrin Pilkey

Dear Sir: My parents, music lovers and seacoast residents for more than half a century, don't like Orrin Pilkey's song. A harmony develops between sea and seaside dwellers. "The sea wall gives us and our inland neighbors and the sea time to sort out our differences," as Dad says at 94.

Sandbagging in 1948 allowed community and sea to come to terms and permitted decades of graceful enjoyment of sea and coast. And, our inland neighbors have had access to the fine public, affordable and debris-free beaches that north Florida still enjoys.

I once spoke with Professor Pilkey about an article quoting him. No, he didn't mind if the condominium fell into the sea. Was it his? "Of course not, it's somebody else's." That's his tune.

Those who listen to old Triton's horn know his song is not for the faint of heart. It takes grace and strength to dance to the music of the waves. Orrin Pilkey may not be a dancer.
Robert G. Weiss
Atlantic Beach, Florida

Dear Sir: I live in Ocean City, New Jersey, now engaged in an ambitious beach-replenishment project, with sand to be pumped in every three years for the next 50. The first pumping, completed in September 1992, gave us huge beaches. Then, relatively minor tropical storm Danielle, with waves up to ten feet, washed out a significant amount of the new beach. Cliffs formed up to five feet high.

Those big, new sandboxes were not natural, living beaches. I haven't found a whole shell on any of them; I haven't seen ghost crabs scurrying out of my path at night. All my favorite tide pools, where I could find starfish and an occasional sea horse, are gone. My landmark old pilings of mossy jetties are covered.

All this to protect properties that should never have been allowed so close to the water. I hope that the necessary long-term funding by the Legislature will be denied.
Stuart Hernandez
Ocean City

Dear Sir: Geologic forces such as erosion have been around for a long time, destroying and creating more beaches than we can imagine. As a geologist and a resident along the coast of Maine, I head a committee seeking ways to hinder the erosion of glacial outwash and marine clays that steadily move from land to sea, affecting our precarious living space.

Both Pilkey and the coastal residents are right: Pilkey, in saying that erosion is in charge and no matter what you do, it is a futile confrontation; the residents, in saying that money conquers all—and if it costs *me* a lot of it to enjoy my location, then so be it.

But if public funds are used, via the Corps of Engineers, to restore beaches in order to preserve those prime residential areas, then only Pilkey is right.
John Splettstoesser
Rockland, Maine

Dear Sir: At a time when the country as a whole needs to work on what is really important—more jobs, the best education for our young, the problems of ever-rising hospital expenses and no national health insurance—we are in no position to spend money for the benefit of million-dollar beach houses.
Albert M. Rohland
St. Louis

Dear Sir: To drive the human race back from the seashore flies in the face of all human characteristics. We are a seawater people. We arose from the sea. Our bodies are mostly seawater. Our fascination with the sea and its shore is genetically inbred. We keep going back to the edge of the sea—to the shore, into the sea—for psychic replenishment, for physical contact with our origin, for pleasure with salt water and sea air and sea sand.

We will not stop or even diminish any of these, despite Pilkey and his ilk, not in this or any eon of the future.
Robert E. Johnston
Seattle

Dear Sir: Having grown up on the Texas Gulf Coast and having spent 10 of the past 12 years on the West Coast, I can easily appreciate the satisfaction and privilege of living very close to the open water. Nevertheless, I have great difficulty accepting the myopic arrogance of people who, finding their little niche of paradise threatened, now wish federal and state taxpayers to foot the bill for their desire to remain in areas obviously not meant for permanent construction.
Jay Blackburn
Seattle

Frogs

Dear Sir: For years now my wife, Chip, and I have produced our own birthday cards to send to our friends, always with our favorite animal theme—frogs. More than a year ago, after looking for the vanished golden toad in Costa Rica, we decided a more serious card was needed to call attention to the rapid and nearly universal disappearance of frogs and salamanders. Our 1992 card [below] has a serious and cautionary message on the back, calling attention to the worldwide disappearance of these ancient, valuable and charming creatures.
Frederic B. Viaux
Wellesley Hills, Massachusetts

WHERE HAVE ALL THE FROGGIES GONE?

Dear Sir: Last summer a friend invited two of us to southern Virginia for a weekend of fishing. The first morning, while launching the canoe, I spotted a little brown frog. When I called to the others, my host immediately jumped after the frog, scooped him up and threw him into the minnow bucket. "They make great bait," he explained. "You stick the hook through their eyes."

I was not too keen on this idea but felt that, as a guest, I could not protest. The other guest had no such qualms. As soon as our friend's back was turned she

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said, "Come on, let's release the frog," and we did. He had beautiful, dark, pythonlike blotches on his back.

When I read your article I was not sorry for our little piece of treachery.

Niall G. Murphy
Arlington, Virginia

Wal-Mart

Dear Sir: Viroqua is one of 20 communities participating in the highly successful Wisconsin Main Street Program. Initiated in 1988 by our Department of Development, it has helped instill pride in communities throughout the state.

The National Trust for Historic Preservation's Main Street Center, launched in 1977, works because control and responsibility remain at the local level. The state provides technical assistance tailored to each community's unique needs, strengths and aspirations.

During the first three years of our state program, the 15 original Main Street communities gained 262 new businesses and 1,299 new jobs. In addition, their downtowns benefited from 322 building or facade rehabilitations, and more than $25 million of public and private reinvestment. It is a program offering real hope to many small communities that are facing the challenge of expanding economic opportunity for their citizens.

Robert N. Trunzo, Secretary
Wisconsin Department of Development
Madison

Dear Sir: Why do people flock to Wal-Mart to shop? The low prices are attractive, but Wal-Mart stores provide far more than that.

On my first visit to a Wal-Mart, in St. Marys, Georgia, I came away with a cart loaded with items I hadn't even realized I needed until I spotted them on that store's shelves. Wal-Mart had anticipated my needs. Subsequent visits over the years have convinced me the chain caters to those unable to find what they want elsewhere.

I'd enjoy shopping closer to my home, but why waste futile hours searching for articles I need when I know exactly where I can locate them?

Lewis B. Melson
Annapolis, Maryland

Dear Sir: As a result of Wal-Mart and other discount stores, thousands of shops that offered quality and service have gone out of business, and true

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Morel
Among the finest fungi, they often appear after forest fires. So 18th century German women, naturally, set fires. Anything for a good veal sauce.

Wood Ear
Protein-wise, they're closer to meat than to vegetables. Forget Meat & Potatoes; stick to Ears & Potatoes.

Shiitake
Dried, their smoky pepperiness is potent. 4 or 5 slices can permeate an entire soufflé. Never underestimate the power of the fungi.

Once you taste a wild mushroom, you can't go back to common varieties. The same is true of Sutter Home Chardonnay. The ripe apple and citrus aromas, crisp fruity flavors, and the dry, lingering finish enhance any moment. It's one of the treasures that can make life more enjoyable... that, and a good fungus.

Enoki
Japanese delicacy, best raw. The Japanese also breed mushrooms tasting like steak, with patty-size crowns. Fungus burger, anyone?

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workmanship, dedication and quality have been eliminated. A sad commentary on our times.
Richard A. Katzman
New Cumberland, Pennsylvania

Dear Sir: There are many reasons to be proud of Viroqua, my hometown. Like most Middle American small towns, it is a caring and concerned community, being buffeted by changes beyond its control.

One important part of maintaining any such town's main street was overlooked in your article. Rural areas are almost totally dependent on the automobile. Service stations on main streets serve not only the traveling public but the local population. Small-town full-service service stations are fast disappearing from the American scene, and Viroqua's are no exception: in 1959 there were 22; now Hoff Mobile Service, owned and operated by my brother Duane [below] and his wife, Dana, is the sole survivor.

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Darrel Hoff
Cambridge, Massachusetts

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Dear Sir: I take exception to Bert Stitt's assessment of Preston: ". . . on a scale of 1 to 10, your downtown is maybe a 2." We are a beautiful community in eastern Iowa, with more than 80 local businesses, 60 of them in the business district your author characterized as "ramshackle." We have a 49-acre industrial park, will soon construct a speculative industrial building and have an active economic development group. Iowa Governor Terry Branstad, presenting us with the Community Economic Preparedness Award, had high praise for our quality of life, devotion to excellence, and thriving business community.
Roger A. Kilburg
Preston, Iowa

Cortés and Montezuma

Dear Sir: The true fountainhead of the historical account of the discovery and conquest of Mexico is the loyal soldier Bernal Díaz del Castillo, who, as you point out, fought at Cortés' side throughout the campaign. Francisco López de Gómara never put foot in the New World, and his secondhand tale so incensed Díaz he wrote *La Verdadera Historia.*
Emilio Caballero
Amarillo, Texas

First Ladies

Dear Sir: In listing First Ladies and their accomplishments, why omit Woodrow Wilson's wives, Ellen and Edith? The former did as much to clean up the slums of Washington as Ladybird Johnson did to beautify our roads. And how about Edith Wilson—the only First Lady who was de facto President, during the long months of Wilson's incapacity after his stroke in 1919?
Perry Laukhuff
Amherst, Virginia
In his two voluminous books about the First Ladies, from Martha Washington to Barbara Bush, Carl Sferrazza Anthony devotes large sections to Ellen and Edith Wilson. Unfortunately there wasn't space in the article for all the Presidents' wives. Ed.

Dear Sir: On page 155 your article states that "Ida [McKinley] appeared on . . . stereopticon cards." A stereopticon is a magic lantern that uses glass slides. A stereograph card, viewed with a stereoscope, is a photographic image, not a slide.
Chuck Reincke
Tustin, California

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For young visitors this month, two exhibitions to intrigue them: 'Art, Arms & Armor' and 'The Kids Bridge'

The great armor show at the Smithsonian's International Gallery, deep underground beneath the Enid A. Haupt Garden, still has more than a month to go. It's called "Imperial Austria: Treasures of Art, Arms & Armor from the State of Styria," which indicates there's more to it than a display of ironclad figures.

Armor was a fact of life in medieval and Renaissance Europe, and the craftsmen who fashioned it hewed to designs they knew. Those of culture-rich Austria quite naturally turned armor-making into an art. So here are VIPs' cuirasses (breast and back plates) and cuisses (thigh pieces) beautifully etched or embossed.

You meet an example as soon as you enter the exhibit area. A cuirass gleams with a floral design of polished metal rising perhaps a millimeter above the darkened background—a black-and-white effect that could only have been achieved by months of endless work. Similarly, the cuirass and crested helmet ("morion," according to the glossary of medieval terms in my book about armor) of a light cavalry officer is etched with such intricate detail that I couldn't help but wonder at the slow pace of 16th-century life.

Were weddings—or funerals—postponed because ceremonial armor wasn't finished? Were wars delayed? ("Hurry up with the engraving, Hans. We're being invaded!")

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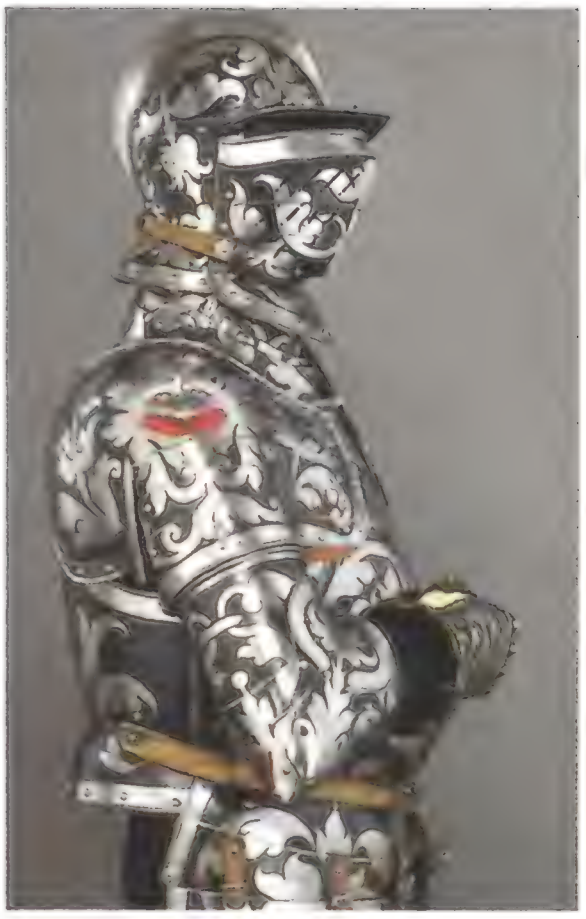

Gaping red mouths of beasts adorn shoulders, elbows, of ceremonial suit.

guard carry etched designs as uniform as the shoulder patches of a modern infantry division. Yet those ancient insignias—a kneeling knight on the right breast, a crucifix on the left—were painstakingly fashioned by hand.

Only a wealthy nobleman could afford all this splendid embellishment or a horse to ride into battle, often partly armored, too, in a style that matched its rider's. The ordinary 14th- or 15th-century soldier was apt to wear simple, unadorned, lightweight armor over a shirt of mail, made of little interlocking metal links. This allowed him to plod around more briskly with his enormous sword or, perhaps, a crossbow.

Firearms were constantly improving, from the wildly inaccurate harquebus to the steadier, more fearsome musket, so armor had to keep up. Armorers tested their work by firing guns at it. Dents proved its quality—they were called "proof marks."

I didn't know that. And I didn't know that the leather straps that held plate armor in place were fastened exactly as my belt is, half a millennium later. Nor did I realize that plate armor was shaped to serve special purposes. A cuirass used for jousting has a lance holder near the right armpit and is reinforced on the left side. Jousting horses came at each other left side to left side, the

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combatants breaking lances as they met, each trying to unseat the other. A latter-day safety feature was a barricade between the charging steeds, keeping them from running into each other.

The shape and structure of armor reflected clothing styles. Some is smoothly rounded, some harshly angular. Maximilian armor (p. 25), named for the Holy Roman Emperor Maximilian I, is roundish and fluted, and seeing it here rang a distant bell in my memory. In the 1950s, as a new and uncertain Sunday feature writer for the *Boston Globe*, I was sent to cover the famous old Higgins Armory Museum in Worcester, Massachusetts, with a tough old Boston photographer of the "Hey, king, move over, willya?" school. As we drove to Worcester, he came up with an idea that, he felt, might raise the level of my story from deadly boring to faintly readable: "We'll get the mayor of Worcester to wear a suit of armor," he announced.

I was aghast. "We can't just go up and ask the mayor to do that!"

"Sure we can," said the veteran. "Hell, he's a politician. He'll do it."

He did. With the cooperation of the museum people, the mayor strapped himself into a large suit of fluted Maximilian armor and was soon clanking happily around while my friend's flashbulbs popped at him. Our only problem was persuading Worcester's executive to take the armor off. He wanted to clatter down to city hall and beard the city council in its chambers.

The Smithsonian's grand show comes from another famous museum of armor, the Landeszeughaus, of Graz, capital of Styria. That region was where Ottoman Turks, invading Austria from Turkey, were held in check before they could reach Vienna. It was the Duchy of Styria back in those centuries; in these dull days it's just a state.

Swords, pikes and halberds, lavishly decorated guns, and the artwork of the time add a dimension to the exhibit. There's a strongbox where funds for paying the troops were carried. Its 26 locks are even more complicated than those on a modern New York City door. Three American museums joined the Institution in organizing this exhibit, and one of its curators, Walter J. Karcheski jr., comes from the Higgins Museum.

Mayors aren't the only people who enjoy wearing armor. To mark the opening of the show in October, the International Gallery sponsored "Knightly Day on the Mall" to show off the crafts, clothing (both metallic and fabric) and capers of the era of chivalry. The Society for Creative Anachronism and the Markland Medieval Militia, both reenactment groups who like to wear 60-pound shirts of homemade mail and whack at one another's shields with swords and halberds, put on a fine display.

Crossword puzzle fans saw for themselves that a vambrace is the armor that covers the forearm, couters guard the elbows, a tasset is the skirting around the hips and thighs, greaves protect the shins. Enraptured youngsters discovered that heavy metal is more than a kind of music and learned a great deal about the "olden days" (you know, when Mother and Dad were young).

Children who come to see the exhibit are given a special guidebook to the armor. A guard told me that some fill out the accompanying questionnaire and some don't. But all react the same when they come upon the figure of a

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horse clad in full armor. It stands in the inner room and, said the guard, kids wander in there thinking about other things "and then it's *Wow!*"

Six elementary schools have joined a program called the "Crystal Quest," a small, scholastically inspired glimpse of what knighthood was all about when members of King Arthur's Round Table ventured on their quest for the Holy Grail. The students complete certain learning goals—"quests"—and at a Smithsonian ceremony on the 15th of next month, they get "knighted."

"Art, Arms & Armor" will be at the International Gallery in the S. Dillon Ripley Center through January 24.

By design, fluted steel was fashionable; by happenstance, it strengthened armor.

An event that's aimed entirely at children is the presentation of "The Kids Bridge," at the Experimental Gallery in the Arts and Industries Building. Boston's famous Children's Museum dreamed this up to help youngsters understand that they come in all sizes, races and nationalities, and to encourage them to get to know one another and find a little fun in their mutual differences.

Until March, we have the essence of the Boston presentation. There, kids cross over a bridge to meet the ways of others who are different. Here, they pass under. Then they fill out a survey describing themselves, things like "My family came from . . . ," "I think I'm good at . . . ," "If I could do one thing to change the world, I would . . ."

In that last category, Jessica Washington, age 4, tells us she would "ban handguns"; Elizabeth Nutting, age 8, says she would "make more books with characters named Elizabeth"; and Elise Gift, age 6, says she would "invent a medicine to cure AIDS." What is it that they say about the mouths of babes?

Interactive computer stations let the player meet children of different ethnic backgrounds and hear them describe cats, dogs and other everyday things in their own languages.

One tells you real-life stories about racism: José tells of the time he was shooting baskets with his new friend, Troy. But when Troy's dad comes home, he pulls his son aside and, in a voice just loud enough for José to hear, tells the boy he doesn't want him playing with José because José is Puerto Rican. "How would you feel?" the voice of José asks. I chose "Angry," entered it on the screen and found out José felt pretty sore, too. "What he did was mean and insulting," says José.

My favorite exhibit was a little sound booth where you hear play-songs from other cultures. I liked "Sally Go 'Round the Moon." It comes from Trinidad.

Experts tell us that small children begin at an early age to categorize and generalize—a natural process of orientation. However, discriminating against, disliking, certain playmates is something they are taught to do. "The Kids Bridge" nudges children in the other direction. It says, people are different and that's OK, and in the words of 10-year-old Milton Costen, "Here, when you cross the bridge, you're going to discover something and start to know [people] better, so you can be friends."

It's heartwarming, in a country that's often racially torn, to see youngsters of various cultures and ethnicities joining in the games set up for them—drawing silhouettes of one another's heads, for example, and cramming them with crayoned thoughts and images that are apt to be very similar.

This exhibition has been adapted by the Smithsonian Institution Traveling Exhibition Service (SITES) for a Washington audience, but wherever the show is set up (Indianapolis, Chicago and Houston, among other cities) local people will add their own ideas to illustrate cultures in their area. SITES sends this show on the road next fall.

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Phenomena, comment and notes

'Tis the season when sensible people try to stay warm and dry. Defying sense, though, offers special rewards

This is the month we slide down into darkness, to the winter solstice, the time of short days and long nights. The pale sun has gone south like a snowbird, to be found overhead at noon in places like Concepción, Paraguay; Lephepe, Botswana; and Alice Springs, Australia. In the Northern Hemisphere, the ambitious drive to work with the headlights on; the rest of us put the lights on for the trip home. North of Florida and Southern California, the weather is cool, cold or downright freezing.

Sensible creatures, we do everything we can to negate the season. We spend our time indoors where it is warm and light. When we do expose ourselves to the season, we overcompensate. Here in Washington, where the temperature seldom drops far below freezing, it is common to see people dressed for northern Manitoba: bulging parkas, lined boots and fur hats—even ski masks over faces. Television weather forecasters treat the threat of two to four inches of snow as impending catastrophe. Snow and slush and freezing rain are nightmares.

As children we were told not to get our feet wet. As adults we don't need reminding; it is not only a matter of comfort, but we are embarrassed if our shoes squish across the rug. When water is falling out of the sky in one nasty form or another, we hold umbrellas over our hats, raincoats and boots so that not a drop or crystal shall touch us.

Let us be clear that I am no mountain man—or outdoor worker—myself. When

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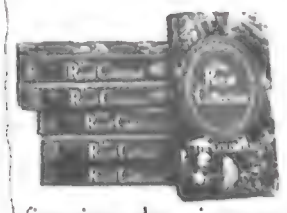

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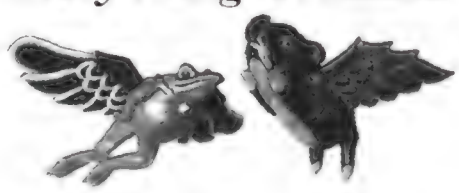

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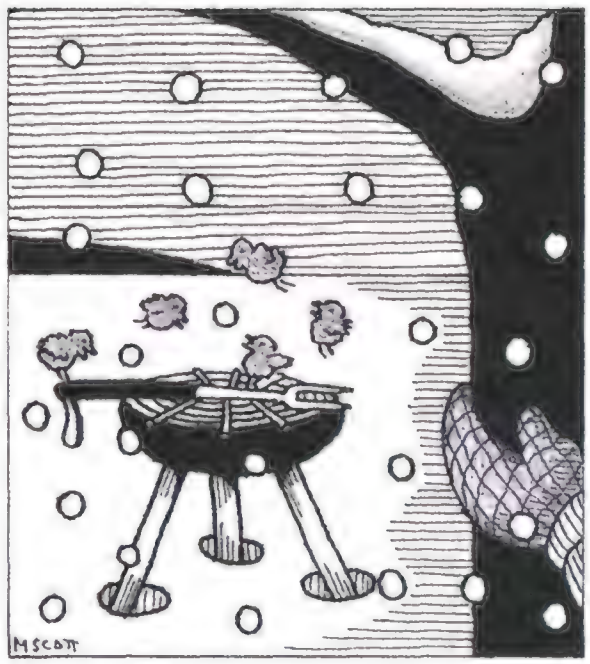
it comes to creature comforts I am first in line. I bundle up and scurry from one heated building to another as quickly as the next sunken-chested desk jockey. Yet all this self-protection leaves us not fully alive. It's a little like staying in a warm bed all day: nice, but inductive to a dreamy, half-alive state.

Sometimes we are snapped out of our winter torpor despite ourselves. A good storm will do it. Driving is no longer a rote activity, requiring so little conscious effort that we scarcely remember the trip home. It becomes instead an adventure, requiring full attention to the road surface, skidding cars, falling branches: our senses are fully engaged in the world around us, in the present. Arriving home safely is an accomplishment instead of dull routine. The experience may not be pleasant, but it leaves us more alive.

This is the season when we can choose to feel more fully alive in a hurry, at any time. All we need do is step outside with the intention of staying outside, embracing rather than avoiding the harshness. At first it seems irrational to put ourselves in discomfort's way. But that's because our memories have a way of excluding the good as well as the bad. We stand at the window on a Saturday morning watching the sleet come down, congratulating ourselves for not having to go outside. We forget that day along the river last winter when sleet caught us far up the trail, our hat froze hard as a helmet and ice cracked off our shoulders. What was at first alarming turned out to be exhilarating. We walked faster and faster, not to get warm or get back to the car but for the joy of walking, feeling an inexplicable oneness with this world of glistening black trees under a gray sky so low you could touch it. The usual worries and dreads were gone; for once we were living in the present, glad to be alive. We found ourselves so warm that we began to do the unthinkable: unzip here, unbutton there. When we finally came home, wet, messy and bedraggled but with face flushed, body filled with a warm fatigue that promises deep sleep, we were glad we were out there.



Spring is as beautiful as the poets say, soft and hazy pastels. "Soft" is the key word, however; you can walk out into spring without ever coming out of a dreamlike state. Summer is lush and steamy, an overgrown garden. Fall is like growing up: life gets harder, and we realize we will die. We forget that winter is not death but the start of another cycle, the circular time of the East, rather than the linear time of the West.

Some bird guides recommend that

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the novice take up the hobby not in spring, in the flood tide of migrants, but in the dead of winter. Only the "regulars" are to be seen then, the year-round residents that are able to tough it out. There are fewer birds to learn, and no leaves to block the line of sight. It is easier to leave a trail and strike out cross-country when there are no tangles of herbaceous growth to make it a chore. The topography itself is visible, even some of the geology.

And so for all these reasons you find yourself on a cold gray morning getting out of the only car in the lot of a local park, or walking away from a line of houses into the stark, seemingly lifeless woods. The cold hurts your face; your body feels a chill although it is too soon to have really gotten cold. Icy air pushes up to bare wrists, finds a vulnerable part of your neck. You step off, walking stiffly in unaccustomed layers of clothes. It all seems a mistake. In the woods nothing moves; there is no sound. You feel stupid, but push on to discover, slowly at first, that you are not alone after all. A crow calls in the distance. A woodpecker flees. Around a bend, chickadees are buzzing in the treetops. White-throated sparrows scratch in the leaves on the ground. Mourning doves whistle away. You stalk the source of a stentorian call to find a Carolina wren, feathers fluffed but still far too small to produce so loud a noise, staring back at you. You push farther and farther, caught up in the quest, pulling off gloves to make squiggly notes. You find yourself looking down for nibbled seedlings, droppings, owl pellets. You wonder what mammals are here unseen: mice? weasels?

You come back again and again, no longer feeling stupid. This place is becoming yours; you know where the birds are likely to be, where sheltered hollows will give you respite from the wind. One brilliant day after a snowstorm you are stunned at the tracks everywhere, at how little you know about the abundance of life here. The sun feels so warm you take off the coat altogether, like a springtime skier. Notes become more legible.

You walk along streams, looking through clear ice for motion. You find a frozen puddle, the inadvertent result of a beaver-built flume for hauling branches to the stream, and see under that sheet of ice a frozen wetland in the middle of the forest floor.

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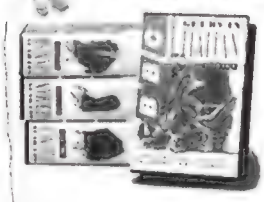

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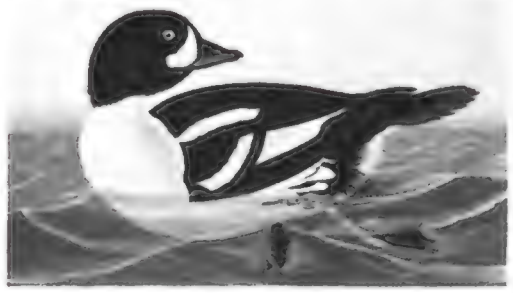

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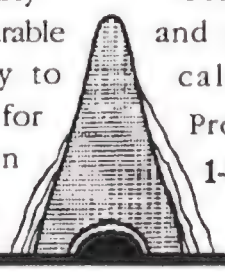

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On a windless day you try a favorite marsh along the river. It seems a wasteland, ragged stumps of stalks sticking up from frozen mud as though a monstrous mower had come through. And yet, there in a channel is a great blue heron, so still that at first you do not see it. Out on the river there are ducks, but not those of summer. These are buffleheads and ruddy ducks, to be seen here only when days are nasty, brutish and short.

Weeks pass. Daylight comes earlier and ends later; the sun now is distinctly higher in the sky at noon. Songs are added to birdcalls as the time to define territories and attract mates draws near. Tree buds swell. The calendar says dead of winter, the air is still cold and snowstorms are still to come, but in fact spring is surging into this winter landscape, like a roller on the horizon that will rise up into a comber and break on the beach. A February thaw is a sensuous delight and yet jarring, like a traveler from the tropics in warm-weather clothes stepping across dirty snow to get into a cab at a northern airport.

Like all the world you welcome spring, and yearn for color and warmth after the black and white and, most of all, the gray. And yet you feel an unexpected sadness that winter has passed so quickly when there was still so much to see and learn, when you had the woods to yourself, a privacy soon to be overrun by other birders, dog walkers, joggers, young lovers and elderly couples holding hands. The woods will leaf out, insects will emerge, and momentarily strange, bright-colored birds will arrive from their wintering grounds. It will all be wonderful, but there will also be a feeling somewhat like that of the residents of a coastal town in Maine when the summer people arrive. There will be a temptation to wink at a gray mockingbird, always soberly dressed in winter gray, and say, "Yes, but you and I stuck it out. We were here all along."

All that is the future. In the here and now, the days are still getting shorter and colder. The noon sun is dropping lower and lower. There will come gray Saturdays with low clouds and the threat of rain or worse. It will be oh so easy to stay indoors. I know that the days I push myself outside will be the highlights of the winter. Not today, of course; I've really got to pay those bills, write those letters, clean the bathroom. But next Saturday for sure.

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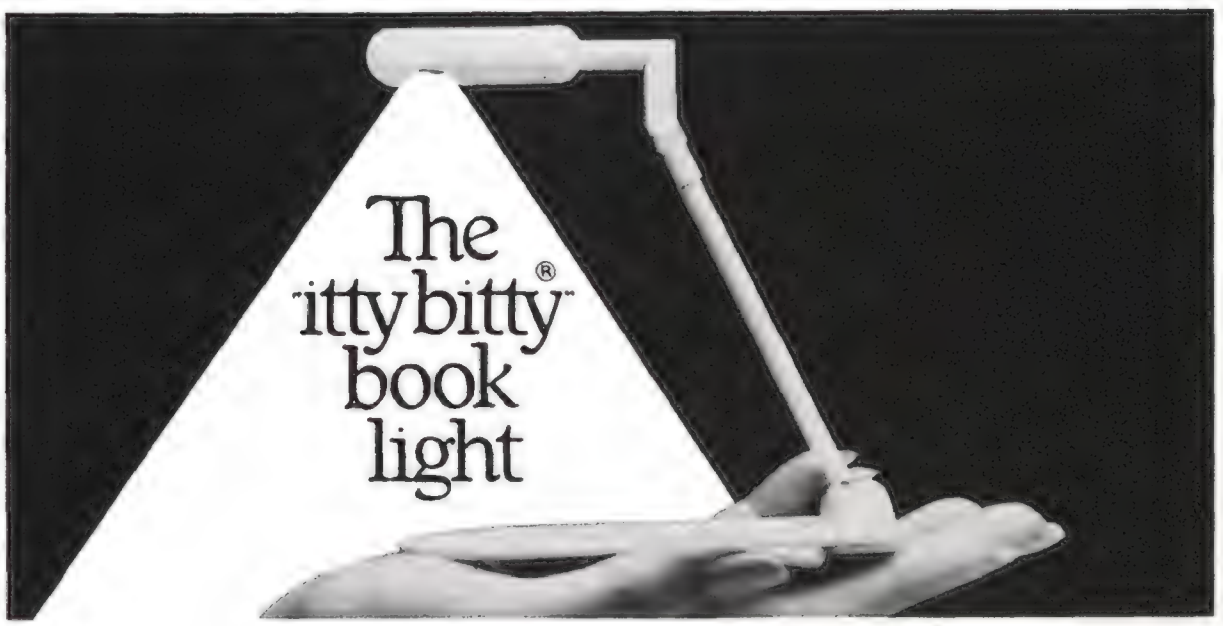

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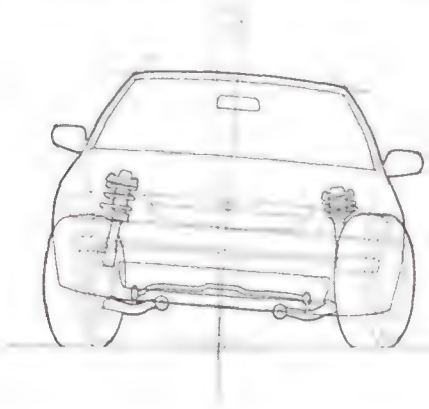

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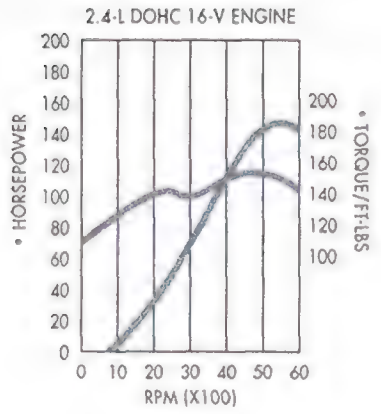

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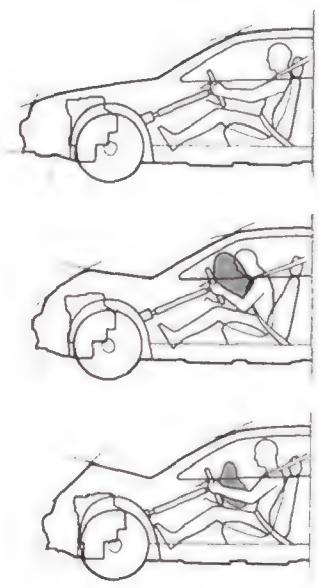

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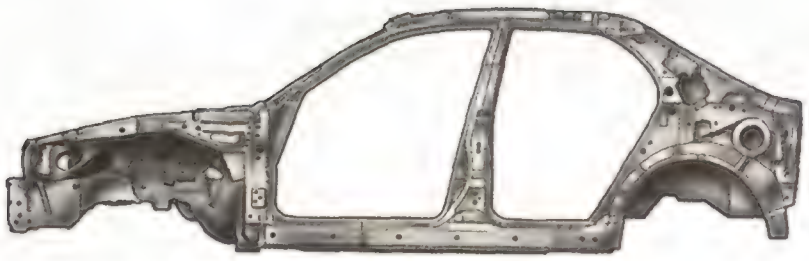

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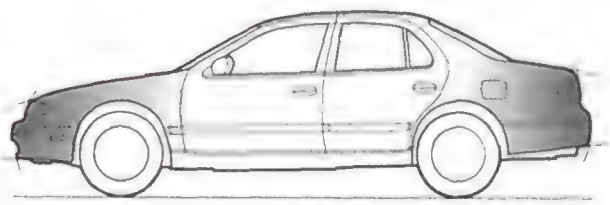

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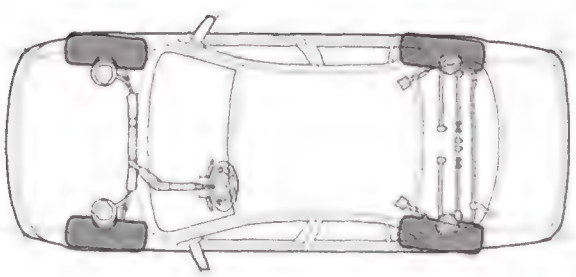

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By Per Ola and Emily d'Aulaire

'Now what are they doing at that crazy St. John the Divine?'

The cathedral called Big John by New Yorkers is unfinished after 100 years, but that doesn't stop it from being the liveliest place in town

Perched high on a scaffold, Simon Verity, 46, picks up his hammer and chisel and goes to work. He carefully chips an eight-foot block of Indiana limestone that frames the entrance to New York City's Cathedral of St. John the Divine. *Tap tap tap tap.* The sound carries to the sidewalk below, where a crowd forms to watch Verity coax a likeness of Moses from one of the buff-colored stones that flank the huge bronze doors of the great city landmark.

An intense Englishman, Verity seems to have stepped straight out of the Middle Ages. His face is finely chiseled, and his wildly tousled hair is covered with talcum-fine stone dust, as are his baggy pants and rough-knit sweater. A master stone carver who learned his trade restoring 13th-century cathedrals in Great Britain, Verity has been shaping stone prophets at St. John's for four years. He uses the four basic hand tools of the cathedral builder: a medieval-style hammer with angled face designed to follow the arc of the hand, a punch, a chisel and a riffler, or rasp.

Verity listens closely to hear the song of the stone under his careful blows. A solid strike and all is well. A higher-pitched ping and it could mean trouble; a chunk of rock could break off. He constantly adjusts the angle of the chisel and the force of the mallet to the pitch, pausing frequently to run his hand over the freshly carved surface. "Touch is an important sense to the stonecutter," he explains, tracing his fingers along Moses' lips. "If the work is not interesting to the touch, it will never appeal to the eye."

Oblivious to the thunking of Verity's mallet, a young Hispanic woman turns off the busy sidewalk below, into the cathedral grounds. She pushes a grocery cart filled with a small bundle of clothes and a bird cage containing a pale blue parakeet. Hesitantly, she approaches a passing clergyman. "Excuse me, but I have nowhere to stay." Canon Charles Pridemore, director of the cathedral's Crisis Ministries, quickly sizing up her situation, escorts her to the Crisis Intervention and Counseling Center. There, some 150 people a week receive help in the form of food, clothing, housing, and treatment for drug addiction and physical abuse. Pridemore knows the woman will find shelter for the night—and help in locating a permanent home and a job if she wants it.

Across the grassy sweep of the cathedral close, Philippe Petit, famous for his clandestine high-wire walk between the World Trade Center towers in 1974, hones his balancing skills in the grand hall of the Synod House. Petit is one of St. John's "artists-in-residence" who receive encouragement and studio space, and in return perform and exhibit their work at the cathedral. To the strains of Paganini, the slight, 43-year-old Frenchman slides his feet along a wire 20 feet above the parquet floor. The dark oak panels and rich grisaille-glass windows of the room seem more appropriate for a medieval banquet—or the 1913 General Convention of the Episcopal Church, for which the building was originally constructed—than for tightrope practice.

"That's part of the glory of this cathedral," says the Very Reverend James Parks Morton, St. John's flamboyant Dean. "It's a place of wonderful contradictions and odd juxtapositions that somehow manage to work out in the end. It's a place with something for everyone." Indeed, though officially Episcopalian and the seat of the Bishop of New York, St. John's opens its pulpit to preachers of all faiths, from rabbis to Zen

Filling the nave are thousands of people who flock to a concert in celebration of the winter solstice.

Photographs by Tom Sobolik/Black Star

Cathedral of odd juxtapositions

Dean James Parks Morton, almost always in motion, is prime instigator of innovative outreach programs.

Buddhists to African animists. The Dalai Lama, Bishop Desmond Tutu, Buckminster Fuller and Chief Austin Two Moons of the Northern Cheyenne have spoken from the carved white-marble pulpit. So too have teenage mothers and homeless men, Robert Redford, Whoopi Goldberg—even Big Bird, who eulogized Muppeteer Jim Henson at his memorial service.

New Yorkers refer to the great cathedral, still under construction, as St. John the Unfinished or, affectionately, Big John. A century ago on December 27, 1892, when the building committee dedicated a ceremonial cornerstone on 13 of Manhattan's highest acres, no one dreamed how long the project would take. Spirits soared that day as a choir sang "Let Us Rise and Build," barely realizing that first they had to dig—and dig.

Workers dug for two years without hitting the bedrock that would support the millions of tons of stone. J. P. Morgan, a cathedral trustee, shelled out $500,000, an extraordinary sum for the time, to "get us out of the hole." Five years later the excavation was complete, and the laying of the foundation began.

The most arresting physical features of the cathedral that rose slowly on Morningside Heights were the eight granite columns that now soar behind the main altar. Each was the height of a five-story building and weighed a quarter-million pounds. The columns were quarried as single blocks of stone in Maine, where it was discovered that there was no polisher that could turn them to their cylindrical shapes. So they were cut in two, floated by barge to New York and hauled up Amsterdam Avenue by steam-powered winches, leaving a trail of mangled manhole covers in their wake.

Then dozens of larger piers were constructed, marching along the nave of the cathedral like giant redwood trunks, holding up the tons of masonry overhead. Howard E. Quirk, a volunteer cathedral guide, demonstrated the great bulk of these piers to a group of visually impaired tourists recently by asking the group to join hands and form a circle around one of them. Arms stretched, it took 17 of the visitors to complete the circle.

Two football fields with room for the football

Like most who have been hooked by St. John's, Quirk takes a proprietary view of the cathedral and is quick to tick off the extraordinary statistics. When finished, it will have the greatest cubic footage of any Gothic cathedral in the world, greater than Chartres, Notre Dame in Paris or the newly completed Washington National Cathedral in Washington, D.C. (SMITHSONIAN, June 1990).

At St. John's, the length of the nave from the bronze doors to the rear of St. Savior's Chapel behind the high altar is 601 feet, two football fields end to end with

The construction that began on December 27, 1892, remains unfinished. The South Tower (center left) still has 100 feet of airspace to fill; work hasn't started yet on the North Tower, south transept or center spire.

room left over for the football. There's plenty of room for the Statue of Liberty (sans pedestal) to stand upright under the dome that soars above the crossing. The nave could accommodate a 12-story office building, and a suburban house would pass through the great rose window where the seated Christ, who looks thumb-nail-size from the floor of the cathedral, is actually 5 feet 7 inches tall.

Each of the 14 bays that form the outer aisles of the cathedral features a magnificent set of towering stained-glass windows representing a different area of human endeavor. In the Medical Bay, Saint Luke, the physician, dominates the clerestory window; beneath him, in the arcade window, a stained-glass Louis Pasteur inoculates a sheep. On the floor of the bay stands a candle-lit altar in memory of AIDS victims; a book displays the names of more than 3,000 who have died from the disease, with more added all too frequently.

The d'Aulaires, a husband-and-wife team who last wrote for SMITHSONIAN *on mannequins (April 1991), spent a year covering the many facets of Big John.*

One of Quirk's favorites is the Communications Bay, where a stained-glass window includes figures inspired by Jack Benny and his wife, Mary Livingston—"not card-carrying Episcopalians to be sure," he chuckles—as well as a man watching a primitive television set. "This window was designed in 1925," says Quirk, "the year of the first successful demonstration of a TV. The designer was incredibly forward-looking."

During his tours, Quirk, a retired businessman, always underscores that "St. John the Divine is not just about its physical size. There are dozens of programs here that deal with human needs."

From the start, the welfare of the surrounding community has been St. John's mission. Mindful of the millions of immigrants pouring into New York City in the late 19th century, St. John's featured seven separate chapels, each representing one of the main ethnic groups settling in the city at the time. Though the chapels are referred to as the "little churches," the chapel dedicated to Saint James, the patron saint of Spain, has its own organ and seats 150 people. There are chapels for French, Celtic and English, Scandina-

vian, Germanic, Eastern Orthodox and Italian worshipers as well.

Work on St. John's progressed sporadically during the first half of this century, depending on the shifting political and economic climate. There was a slowdown during World War I, then the Great Depression created shortages of material. When World War II began, manpower became scarce and building materials unavailable. Construction came to a complete halt. Visitors today can see a small, decorative arch where, it is said, a craftsman immediately lay down his tools to go enlist when he heard the news of the Japanese attack on Pearl Harbor; the arch is still unfinished.

Forever St. John the Unfinished?

After World War II, St. John the Divine, the Mother Church of the Diocese, was a quiet place to worship and pray. There was little, if any, social action—and no new construction. The Episcopal Diocese feared that resuming work on so grand a structure in so poor a neighborhood would give the impression that the church was indifferent to the desperate needs of the surrounding community. Though St. John's fronts on affluent Morningside Heights and the ivied halls of Columbia University, the tough, drug-infested neighborhoods of Manhattan Valley and Harlem knock at its back door. For nearly 30 years it seemed to everyone that St. John the Divine was doomed to remain St. John the Unfinished.

Then, in 1972, the Right Reverend Paul Moore jr. became Bishop of New York and moved into a house on the cathedral grounds. A politically active churchman during the '60s who marched with Martin Luther King jr. and opposed the war in Vietnam, Moore decided to turn the white elephant into something more than what he called a "screaming anachronism." He named as Dean of the Cathedral his equally activist friend James Parks Morton, whose ministry, like Moore's, was to the inner-city poor.

"When I arrived," says Dean Morton, a perpetually rumpled man who exudes energy and enthusiasm, "the neighborhoods around the cathedral were being torched; West Harlem and Manhattan Valley were literally on fire. Corporations were moving their offices and employees out of the city in droves. And the cathedral, with a sort of *noli me tangere* reputation in the neighborhood, sat up here on the hill while things went to hell in the valley."

Morton and Moore began with the most obvious need: decent housing. In 1973 they created the Urban Homesteading Assistance Board (UHAB) to teach the poor how to buy abandoned buildings, renovate them and live in them. Now, as New York's oldest and most effective sweat equity housing program, UHAB has renovated more than 600 buildings and 18,000 apartments, and serves as a model for similar programs across the country.

Buoyed by the success of UHAB, Dean Morton resurrected the cathedral building program, and immediately ran up against a stone wall—or, rather, the lack of one. The art of stone carving was virtually extinct in the United States. So Morton created the Cathedral Stoneyard Institute in 1979, importing master carvers from England and recruiting trainees from the neighborhood jobless. It was one of those serendipitous happenings where everybody wins—the local unemployed secured careers, a dying art was revived and the cathedral began to rise again. Last year, in recognition of its contribution to the community, the Stoneyard Training Institute received a $100,000 grant from

At the 1991 St. Francis Day Earth Mass, Senator Albert Gore (above, left) joins priests, volunteer animal handlers (in red robes) and menagerie that includes a camel and an elephant to start off the procession. Jeremy Barton (right) gingerly carries his goldfish to be blessed.

Stained-glass window of sinking *Titanic* was given in memory of John Jacob Astor, who died in 1912 disaster.

The face of Nelson Mandela by carver Emmanuel Fourchet is just one of many nontraditional motifs.

the New York City Urban Development Corporation for its apprenticeship program for at-risk youth.

From the beginning, the English master carvers encouraged their American students—many with little education—to be creative while remaining true to 13th-century designs. The result is unique: American Gothic with a flavor all its own. Scattered among the traditional saints that grace the cathedral are Indian totem poles, New York skyscrapers, blue jays, bears, and the faces of Abraham Lincoln and Nelson Mandela (below).

Each carved stone tells a story

One sunny afternoon, stoneyard manager Eddie Pizarro, who grew up in Spanish Harlem, picked his way through a side yard littered with limestone blocks waiting to be hoisted 200 feet up the South Tower. He ticked off the names of the men who had worked on each piece. "I can tell from the boasting marks," he explained, noting that the lines the chisel leaves are different for each person. "I can even tell you what kind of a mood the carver was in the day he did it. When you work on a stone, you put your heart and soul into it. The stones here will tell stories for centuries to come."

The stoneyard works is hardly the kind of place one would expect to find on cathedral grounds. Million-dollar saws, routers and profilers guided by microprocessors cut the raw limestone. To date, 5,164 stones have been cut, carved and set on the Tower of St. Paul by more than a hundred young men and women.

Even more unusual for a church, the project is a for-profit company with clients across the United States and Canada. A $6 million enterprise, it is operated as a partnership between the cathedral and David Teitelbaum, a Manhattan preservationist and developer. One-third of the profits goes into the cathedral's building fund, the other two-thirds to the stoneworks for expansion and equipment. "We've created an unusual niche for ourselves—a high-tech, artisan-based company that can take on garden benches and 50-story buildings, a company that just happens to be constructing the largest Gothic cathedral in the world," says Teitelbaum.

Indeed, all the high-tech equipment has not replaced the artisans who add the final details—the delicate carving of winged serpents, saints, gargoyles and grotesques. Says Alan Bird, a master mason from England and now Clerk of the Works, "You can't ever replace the unique individuality a carver brings to the stone with a machine."

Stoneyard artisans are often asked why they bother to put so much effort into each tiny detail on a stone that's going to end up so high on a structure. Angel

Escobar, a neighborhood recruit who trained under Bird, answers, "I know my carving is up there, and that's all that matters. And I know it's going to be there for a long, long time. That's enough for me."

"A lot of these people had a rough time before they came here," says Bird. "If they made a mistake and I got angry, they thought, 'Well that's it. I'm out the door.' I had to help them understand that if they put their best efforts into the job and learned from their mistakes, they were here to stay. One day they'd be teaching young people themselves. That's going to be our greatest achievement: not finishing one tower or two towers or even a cathedral, but seeing the next generation emerge with marketable skills. We're building *people.* That's what we're about, and why I'm here."

Many of the men who work under Bird have seen their lives change. Edgar Reyes, a bear of a man, was removed from his home at age 10 because his alcoholic stepfather brutally beat him. Reyes spent his youth bouncing from one group home to another in neighborhoods where drugs and murder are routine. A social worker suggested he try the cathedral's Manhattan Valley Youth Outreach Program. The 17-year-old alternated between going to high school for two weeks and working for two weeks. Reyes stuck it out, becoming one of more than 40,000 troubled young people who have been helped by the program. A four-year apprenticeship changed Reyes' life; he earned a high school diploma—and a permanent job building a cathedral.

"I was mean before I came here," admits Reyes. "Anyone crossed my path, he'd be in big trouble." He emits an ominous growl. "Now I wake up every morning with joy in my heart. I'm proud. You can't get me off that tower. I love being up there. If it weren't for the cathedral, I'd be probably be in jail."

"You don't have to be a believer"

Pride is an undercurrent running through all who work, live, teach and preach at Big John. Philippe Petit, still a French citizen, considers this uniquely American cathedral his real home. He has even created an informal "office" for himself—and three tons of high-wire equipment—in an aerie 60 feet up in the triforium overlooking the nave. "I can listen to concerts and watch evening vespers. It's an incredible sensation to be working alone far above the nave and suddenly hear Bach flooding the cathedral. I'm not a religious man, but you don't have to be a believer to be touched by the space and the sacredness of St. John's. This is my private domain, and it's infinite."

Indeed, it seems Petit views the cathedral as if it were a mountain. Sometimes, after everyone has left at night, he hauls out his climbing gear and scales columns and walls. "You know how mountain climbers

Lead cutter Angel Escobar trains apprentice Lisa Young in understanding complexities of shaping stone.

Simon Verity, beside his nearly completed Prophet Elijah, came from England to work and teach his craft.

Oren Lyons, Faithkeeper of Onandaga Nation, speaks at the annual Native American Thanksgiving service.

give difficult routes a name?" he asks. "I have my own private repertoire." Cathedral guards on their late-night rounds have become accustomed to the sight of Petit clambering above them like a silent spider.

Petit first gained Dean Morton's favor by performing one of his infamous, clandestine high-wire acts—inside the cathedral. "I like to physically link what was doomed to be separated forever," explains Petit as he describes his first cathedral walk. He hid in the church one evening and used a slingshot to loft a light wire between two balconies 60 feet up, Batman-style. Then he pulled a heavier wire from one side of the nave to the other and anchored both ends securely. He left, and early the next morning he balanced his way along the high wire "just for me and the church." When he reached the other side the police were waiting, alerted by a worried worshiper. As New York's Finest clamped the handcuffs on Petit, Dean Morton swept up to the balcony. "Take those off!" he demanded. "He's not a criminal. He's an artist." Petit has been among the cathedral's 18 artists-in-residence ever since.

As with all artists-in-residence at St. John's, there are no formal rules or obligations. The church helps them. Then the artists do what they can for the cathedral. Petit, for example, has raised thousands of dollars for St. John's performing in such events as "Ascent: Concert for Grand Piano and High Wire" and a celebration for the workers on the South Tower, where he walked high above Amsterdam Avenue to deliver a golden trowel. It made the *New York Times* (p. 44). "It was great publicity for the cathedral," grins Petit. As he talks, a burst of organ music fills his aerie. "That must be Dorothy practicing," he comments.

Their organist wears jazz shoes to church

Dorothy Papadakos is the 32-year-old head organist, the first female to hold such a position at any of the world's great cathedrals. She is a striking woman of Greek descent whose background includes a stint as a jazz pianist in Reno, Nevada. Her laughter is as rich as the instrument she plays.

She changes from sneakers into a special pair of men's jazz shoes. She explains that the soft soles, inch-high heels and narrow toes let her feet dance around the pedals quickly and easily. There are 8,035 pipes accessed by the organ. The smallest pipe—a German-style flute with the high-pitched sound of birdsong—is pencil thin and less than a half-inch tall. The largest pipe could pack in six people standing on one another's shoulders. The combined effect exceeds that of a 143-piece orchestra.

Skillfully, Dorothy's fingers and feet skip over the keyboard and foot pedals, not missing a beat as she pulls and pushes the various stops. The console looks about as complicated as a jetliner's cockpit.

Papadakos cherishes the variety of her job: Jewish weddings, Buddhist funerals, Protestant christenings. One of her most memorable—and difficult—assignments was playing for Jim Henson's memorial service. "The prelude was all Muppet music. I wept when I played 'The Rainbow Connection.' I still get choked up thinking about it."

Originally built in 1910, the Aeolian-Skinner organ that Papadakos babies is beginning to wheeze badly from leaks in its old bellows. A drive is under way to raise the $1.5 million needed to fully restore and endow what Papadakos affectionately calls "the Beast." "The organ is the voice of the cathedral," she says. "It has the final word at every event."

There is no shortage of events at St. John's, where the concert series alone is on a par with the programs of Carnegie Hall and Lincoln Center. Guest conductors lead some of the finest symphony orchestras, giving more than 50 concerts in the cathedral each year to more than 20,000 New Yorkers. During the summers,

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silent-film festivals, complete with organ accompaniment and popcorn, entertain parishioners. On Halloween, candles dimly illuminate the nave, and vapors from dry ice placed at strategic locations produce a decidedly spooky atmosphere. Everyone in costume is welcome, and it's always a packed house.

Following the Persian Gulf War, St. John's paid homage to those who had lost their lives, including the thousands of Iraqi civilians and soldiers. The interfaith service incorporated prayers, music and readings by generals Norman Schwarzkopf and Colin Powell as well as Secretary of Defense Dick Cheney. In a place where anything goes, they were as welcome as the protesters who leapt to their feet during the ceremony, shouting, "Murderers in the cathedral!" Secret Service agents, however, took a dimmer view. They quickly whisked the protesters out. "It was definitely one of our more controversial events," says the Rt. Rev. Richard Grein, who came from Kansas to replace Bishop Moore when he retired in 1989, "but we have always seen the cathedral as a gathering place for the city."

Senior outreach program lets Gisella Vekony live at home with help from volunteers like Orlando Santos.

Perhaps more upsetting to some was the sculpture of a female Christ, complete with breasts, that Dean Morton put on display as part of an exhibition on the Passion through the eyes of women artists during Holy Week a few years ago. "Christa created a real brouhaha," recalls Quirk. "But Bishop Moore agreed with the Dean that we need to overcome the sexism that is implicit in so much of the history of our faith." Paul Gorman, executive dirctor of St. John's Interfaith Consortium for the Environment, thinks the cathedral's "radical hospitality," as he calls it, is one of its great strengths. "I told the Dean he ought to have the words 'Of Course' carved over the portals of the bronze doors," he says, "because when someone asks 'Can I do this?' that's usually his response."

The annual Blessing of Animals is one of those "of course" events. Begun in 1985 and held each October on the Feast of St. Francis, the service is typical of the "crazy things" that go on that are perhaps not so crazy after all. Each year more than 6,000 people and their pets crowd into St. John's for the St. Francis Day Earth Mass. As the music of the Paul Winter Consort fills the place with the sounds of timber wolves and humpback whales, dogs strain at their leashes, eager for an ecumenical sniff at other hounds, rabbits peek from shoe boxes, and goldfish slosh in bowls.

Last year, a tattooed man roamed the aisles with two boa constrictors, one as thick as his calf, the other sporting a blue ribbon around its neck. After a sermon—always delivered by a prominent dignitary—by Senator Albert Gore, the great bronze doors were opened, and in came the official entourage of beasts that had been trucked in from far and wide. The church fell silent as the creatures made their way to the altar, among them an elephant, a hedgehog, a pig, a particularly grumpy-looking camel, and a 3.5-billion-year-old rock from Australia covered with bacteria and reverently borne on a pillow. They were followed by a man in a choir robe, pushing a wheelbarrow and shouldering a shovel "in case one of the animals decides to make an offering to God." Bishop Grein blessed them one and all.

Taking Saint Francis seriously

"Anywhere else, the St. Francis Day service could easily turn into a sentimental celebration or some sort of sideshow," points out writer-in-residence William Bryant Logan, who is working on a book on everything you ever wanted to know about soil. "The reason it never has, is that the Dean is serious about Saint Francis, not only as a man who loved animals but as a risk taker," says lanky, blue-eyed Logan. "Saint Francis went into the streets talking to animals, building churches with his bare hands—doing things that could subject him to ridicule because he believed in them. It's

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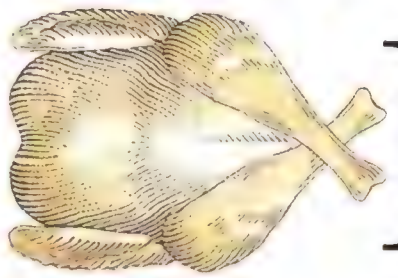

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—Robert Urich

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PURINA O·N·E SECOND TO NONE

In 1982, a *New York Times* photographer captured Philippe Petit, a St. John's artist-in-residence, as he walked a tightrope across Amsterdam Avenue to cathedral's South Tower. The event celebrated start-up of construction after a 40-year hiatus.

that idea of openness and courage that appeals to the Dean." Not everybody in the congregation shares his enthusiasm, however. Wrote one parishioner to Bishop Grein: "If I see another picture of the Bishop of New York holding an animal I think I'll throw up."

Blessing elephants was just one aspect of his job that Grein, an urbane 60-year-old, had to get used to when he arrived from his previous post in Kansas City. "St. John's is like New York," he says, "an untidy tangle of seemingly unmanageable problems that teems with creativity."

The rough, unfinished look and the mix of the down-and-out with the well-heeled is what makes people of all ages and all faiths feel so comfortable. Children sprawl on their stomachs on the floor of the nave, sketching the great rose window under the watchful eye of a teacher. Neighborhood kids play basketball in a basement gym, their shouts drifting up through metal grates in the cathedral floor. Worshipers kneel silently beneath banks of softly flickering candles, seemingly oblivious to tourists passing by—some half-million a year.

The 13-acre cathedral grounds are an oasis in warm weather. Children splash in the waters of the Peace Fountain, a 32,000-pound bronze sculpture depicting a winged angel vanquishing the forces of evil. It was created by sculptor-in-residence Greg Wyatt. Some 300 youngsters a day attend summer camp. The soup kitchen serves 48,000 meals a year. Hundreds of homeless men find warmth at the cathedral's shelter, and many area senior citizens are able to remain in their own homes thanks to the Senior Outreach Program, which helps them with everyday tasks that have become difficult for them.

People who work and live in the neighborhood bring bag lunches to the Biblical Garden, where specimens of plants mentioned in the Bible are carefully tended by volunteers who call themselves the Divine Gardeners.

For many neighborhood children, the cathedral grounds provide a green alternative to their world of tenements and asphalt. Close to 3,000 local youngsters take part each year in after-school activities. They sometimes have much to learn. One afternoon as a teacher led a group along a path near Cathedral House, a peacock-in-residence fanned and shook its majestic tail in a mating display—though the only other bird in sight was a bewildered pigeon. "Who can tell me what that creature is?" the teacher asked his charges. "I can!" screamed a delighted 6-year-old boy. "It's a moose!"

Teaching inner-city children about nature is just one of many environment-related issues that are as high a priority for the cathedral staff as liturgical and outreach activities, according to Dean Morton. "What drives us forward today," he claims, "is our need to help people understand that religion and ecology are two faces of the same coin. We must of course continue to heal poverty. That's one side of it. But we're not just trashing the poor, we're trashing the Earth. This must be a focus for our mission in the 21st century."

Toward that end, the cathedral has introduced the Green Congregation Hotline, a toll-free number for churches and synagogues interested in starting their own environmental programs. The Gaia Institute, the scientific arm of the cathedral, is developing an urban-

rooftop agriculture system that could produce food on hundreds of acres of wasted city space. One future Gaia plan shows the cathedral as a solar bioshelter, with mosses, ferns and flowers flourishing under a Gothic-style, glass-enclosed transept which, according to Dean Morton, represents "a marriage of architecture and natural systems that may become the future norm."

The $64,000 question of course is, will this cathedral, this work-in-progress, *ever* be finished? Bishop Grein claims that with enough money, the job might be done in ten years, though most disagree with that optimistic prediction. "At best I would hope to see the South Tower finished in my lifetime," says Alan Bird. "My greatest joy would be to hear the bells ring out of that tower." Edgar Reyes laughs heartily, "The cathedral? Done? Not in my lifetime, that's for sure. Maybe my kids' kids' kids'." Dean Morton tends to agree. "The Cathedral of St. John the Divine, like spiritual growth itself, is a process without end."

As the cathedral celebrates its 100th birthday on December 27—St. John's Day—construction has again stopped. Because of tight economic times, its operating budget has been cut from $11 million to $9 million a year, and most of that goes to social outreach. Cathedral Stoneworks is churning out limestone filigrees for museums, churches, synagogues and private mansions, banking the profits for the time when construction resumes. Simon Verity continues to turn pillars of stone into prophets on the Portals of Paradise. But major work will have to wait.

There is still more than a hundred feet of unfilled airspace above the South Tower along Amsterdam Avenue. The North Tower is not even begun. The completion of the crossing, the transepts, the choir roof and the planned center spire are still just dreams. It is likely that a hundred years hence, on the 200th anniversary of the laying of the cornerstone, this vibrant, constantly evolving work of stone and spirit will still be known as St. John the Unfinished. And people will be asking: "*Now* what are they doing at that crazy cathedral?"

Bishop Grein carries Casey the chimp to cathedral close after the St. Francis Day Earth Mass. More than 6,000 people and their pets gather annually to receive an individual blessing from a member of the clergy.

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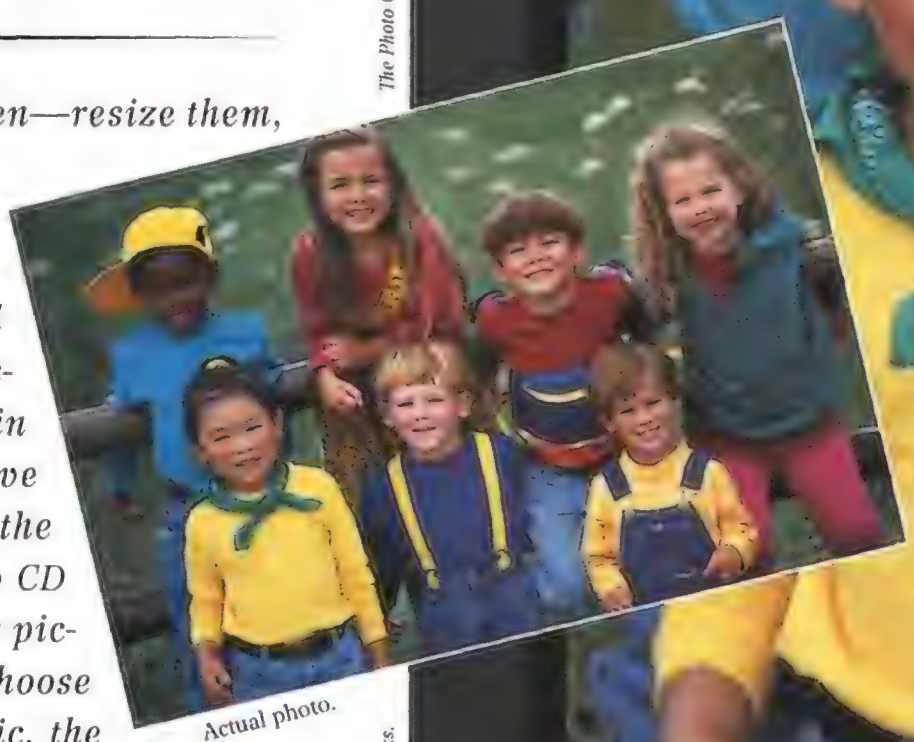

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By Michael Lipske

Forget Hollywood: these bloodthirsty beauties are for real

There are animals that eat plants. And plants that eat animals. And animals that eat the plants that eat animals. And . . .

Cooking up a delightful movie comedy that stars a speaking vegetable cannot have been easy. So it is a little unfair to contemplate plot changes—especially at this late date—to director Roger Corman's wonderfully goofy 32-year-old film *The Little Shop of Horrors.*

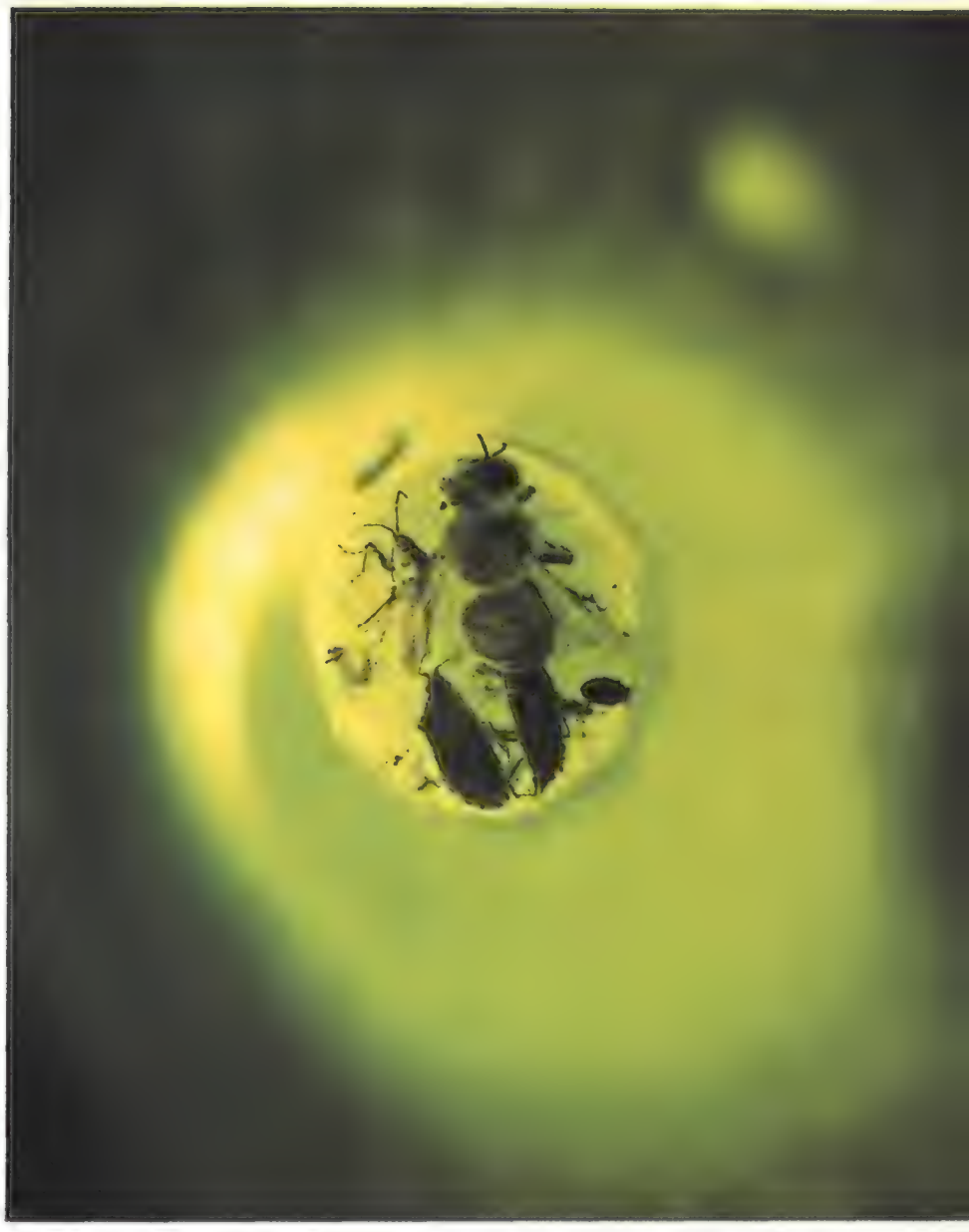
You probably remember the story. It's sort of a "Tales from the Dark Side of the Victory Garden," with much of the gut-level emotion expressed by a giant, belching, flesh-eating plant, Audrey jr. Under the increasingly desperate care of Seymour Krelboing, klutzy clerk in a skid-row Los Angeles florist shop, the plant eats a railroad detective, a dentist, a burglar and a prostitute. "Feeeeed meeeee!" the plant demands. Finally, the pushy plant even eats poor Seymour.

Now *that's* entertainment. But what if Corman had planted his tale in another locale? Imagine Audrey jr. lurking at a florist's in Pascagoula, Mississippi, or in Pensacola, Florida; the story now unfolds smack in the middle of a very real realm of vegetable voracity.

Bellows from Seymour's ravenous charge could spark sympathy among the approximately two dozen species of carnivorous plants growing along the Gulf Coast. A vegetable uprising would sprout, with humans battling millions of flesh-eating botanicals. Our side would hurl weed-killing sorties from Eglin and Tyndall Air Force bases. Their side—cool customers with blood on their blossoms—would advance like crabgrass across the lawn, munching on the feisty but doomed residents of small Southern towns before bearing down on the huddled masses in swimsuits along the Redneck Riviera. There the insatiable plants would pause to forge an unholy alliance with . . . Jaws?

Suffice it to say, if Roger Corman ever schedules a sequel to his *Little Shop,* he should send scouts to America's real carnivore country. Here, on the Southeast's hot and humid coastal plain, glistening sticky sundews, tall, tubular pitcher plants and their vegetable brethren snare and digest insects and other hapless creatures by the millions. Botanically speaking, it is one of the strangest areas on Earth.

Although carnivorous plants grow in Canada, parts of the Northwest and Northeast as well as California, nearly 90 percent of North American species can be found within a long arc stretching from Virginia to Texas, with some of the fiercest feeding occurring along the Gulf Coast. A skilled searcher working the



Inside a pitcher, a doomed insect might see earlier victims that followed a nectar trail to their deaths.

A favorite of florists is the striking leaf of carnivorous white-topped pitcher plant; over it looms green fruit.

Photographs by Robert Noonan

Downward-pointing hairs inside pitcher prevent the ant from climbing out. When it slips, it cannot regain the lost ground.

Insects have been trapped by the sticky droplets on the stems of this thread-leaved sundew. Flies are the most frequent prey.

zone between Florida's Apalachicola River and Louisiana's Tangipahoa can find as many as 13 species in a single bog. Growing in flat, grassy savannas pressed among the pinewoods, there are more kinds of carnivorous plants here than in any area of comparable size in the Western Hemisphere, and perhaps the world.

Quaker botanist William Bartram, exploring the Southeast in a time when "Bears, tygers, wolves, and wild cats [were] numerous enough," marveled at the hollow, liquid-bearing leaves of pitcher plants along the coastal plain. In his 1791 *Travels*, he was the first naturalist to accurately describe the inner structure of the leaves; he noted the stiff, downward-pointing hairs that prevent those insects "invited down to sip the mellifluous exudation" from crawling back up to freedom. Bartram wrongly believed that the pitcher leaves functioned as cisterns, providing water for the plants in time of drought, and he doubted that trapped insects were a source of nourishment. Less than a hundred years later, Charles Darwin published proof that carnivorous plants not only snare insects but also dissolve their soft tissues in order to absorb liquid animal nutrients; carnivorous plants that were provided with such fare grew more vigorously in Darwin's experiments than did members of the same species deprived of animal meals. Scientists still marvel at the plants and the places they inhabit.

"The areas are so fascinating they just kind of grab you and take you over," says George Folkerts, an Auburn University zoologist who has studied the ecology of what he calls "pitcher plant bogs" in the Southeast since the early 1970s. Blooming with orchids, lilies and other flowers, the bogs are among the richest plant communities anywhere, with as many as 35 species per square meter. But as many of these soggy sites have been drained and developed, this floral abundance is fading. Compared with the profusion of Bartram's time, only a pittance of pitcher plant habitat remains: probably just 3 percent of the carnivorous kingdom that once covered thousands of acres in places along the Gulf Coast. "If something's not done," says Folkerts, "there will be, at the turn of the century, very, very few sites left where one can go and see pitcher plants." In the areas that do remain, overharvesting—including poaching—threatens the future of the carnivores. North Carolina now levies fines of up to $2,000 for illegal taking of the Venus flytrap.

It is easy to understand the allure of these slightly

This mosquito is trapped by the mucilaginous droplets on the hairs of a sundew leaf. Soon the leaf may begin to close, putting more of the glandular hairs in contact with the insect.

Fly is stuck fast to the shiny drops produced by stalked glands on a butterwort leaf. Other glands will now secrete digestive enzymes that build up in a pool, engulf prey and are reabsorbed.

creepy plants. "They turn the tables," explains Leo Song jr., manager of the greenhouse complex at California State University, in Fullerton, and coeditor of the quarterly journal of the International Carnivorous Plant Society. "Usually, plants get eaten by insects. And here's a plant that eats insects."

Equally intriguing are cases where insects turn the tables yet again. In many bogs, a small moth belonging to the genus *Exyra* goes about the tricky business of securing food and shelter from the deadly tubes of pitcher plants. The moth's larva chews a groove around the inside of the pitcher in which it has hatched, causing the upper part of the leaf to wilt and collapse. The remodeling prevents other insects from entering the tube, thus ending that leaf's ability to capture prey. A wasp, *Isodontia mexicana,* does the same when it lays an egg on alternating layers of grass and paralyzed grasshoppers stuffed into the pitcher leaf.

One animal's chamber of doom is another's cozy room. Scientists have learned that an array of specialized arthropods maintain useful relations with pitcher plants. Some insects feed on tiny rotting carcasses or ply the plant's rich inner broth for other food. Larvae that profit from the supermarket provided by the plant may speed up the breakdown of dead prey, rendering nutrients more readily available to their host.

The strategies used by carnivorous plants are cunning indeed. The tiny trapping mechanisms of bladderworts, a genus of rootless, often aquatic plants found throughout the world, sometimes are as small as a pinhead. Yet the traps exhibit some of the most sophisticated engineering of all carnivorous plants. Found on the plant's stems or leaves or both, the hollow traps have an entrance door that rests against a threshold sealed with mucilage-secreting cells. When the bladder trap is set for capture, its interior is almost free of water. A passing mosquito larva or other tiny creature that lightly brushes trigger-hairs on the outside of the door causes it to open inward; water shoots into the bladder, carrying the victim with it; the trap walls swell outward, the door reshuts and the prey—free-swimming a second ago—is now imprisoned in a translucent sac, ready to be digested by enzymes secreted by glands within the bladder.

Washington, D.C. freelancer Michael Lipske makes a specialty of natural history. He enjoys searching bogs, forests, deserts and grasslands for his next topic.

Like all green plants, the carnivores manufacture food from sunlight, water and carbon dioxide. But they also possess the modified leaves that permit them to capture and consume animal food. Most of the carnivores grow in areas with highly acidic soils. That acidity ties up nutrients that otherwise would be available to plants. The ability to eat animals gives the plants a leg up in a difficult environment.

Probably the best-known insect catcher is the Venus flytrap. With curved spines projecting from the edges of its gaping red leaves, shaped like open clamshells, it even looks like a meat eater—a plant that Charles Darwin judged to be "from the rapidity and force of its movements . . . one of the most wonderful in the world." Darwin was only echoing the wonder of earlier observers. "Astonishing production!" declared Bartram. "See the incarnate lobes expanding, how gay and sportive they appear! Ready on the spring to intrap incautious deluded insects!" Nectar-secreting glands on each leaf lure the prey—most often ants and spiders rather than flies, despite the plant's name. At midpoint of each lobe of the leaf are trigger-hairs. A potential victim must brush a single hair twice or two hairs in succession—within a span of no more than 20 seconds—to generate electrical signals that cause the trap to snap shut within another second. The projecting spines now function as bars on a cage, and the closed leaf becomes a stomach that begins to secrete digestive fluids. When the leaf trap opens a few days later, all that remains of the victim is a husk.

Caterpillar stage of *Exyra semicrocea*, a pitcher plant moth, falls victim to a spider lurking at plant's mouth.

No less deadly are sticky snackers like the sundews, equipped with glittering, gluey filaments that snare insects. Several decades ago, a British scientist described a dense, two-acre stand of sundews upon which a horde of migrating butterflies had settled. With as many as seven butterflies stuck to each plant, the number of doomed insects may have approached six million.

Hollow-leaved pitcher plants are passive killers. These include not only the 16 species scattered across North and South America but also bizarre-looking members of the genus *Nepenthes*. These pitcher plants of tropical Asia and Madagascar often grow as climbing vines in the jungle. Their gourdlike dangling pitchers are shaped like bananas, cornucopias or even toilets. Collecting cockroaches, centipedes, scorpions and reportedly an occasional rat, *Nepenthes* pitchers can come in handy for travelers. Parched during his ascent of Mount Ophir, in Peninsular Malaysia, the 19th-century naturalist Alfred Russel Wallace turned to the local pitcher plants. "Full of insects and otherwise uninviting," he wrote, the warm water inside the pitchers proved drinkable and "we all quenched our thirst from these natural jugs."

A death trap only Vincent Price could love

The pitcher plant's diabolical trapping technique is the sort of thing that should be narrated by Vincent Price. First comes cruel artifice. Often brightly colored, the tall trumpet-shaped leaves of several North American species mimic flowers, and lure prey with good looks and sweet scent. Sometimes a trail of nectar-secreting glands starts at ground level and leads on up the outside of the leaf—a "right this way" summons to ants.

The hungry ant or other potential meal is lured to the mouth of the trumpet, so crowded with nectar glands it may be wet. But below this mother lode of sugar, the interior of the pitcher tube is waxy and slick. This is the start of the plant's slippery slope, where vic-

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12

tims lose their footing and slide into the increasingly narrow tube. Down inside, the inner wall of the leaf is lined with glands that secrete digestive enzymes, which trickle down and collect in the bottom of the trap. The insect slips lower, to where the surrounding wall is lined with downward-pointing hairs that discourage exit. In some species, the bottom fluid contains an ingredient to stun the struggling captive. There may even be a wetting agent that helps soak and drown the victim.

The honeyed lure, the fatal slip, the plunge into a fatal pool—it's a clear case of life imitating Edgar Allan Poe. But the pitcher plant giveth, as well as taketh away. For those creatures that are ready and able to live in the belly of a vegetable beast, a bog ripe with pitchers is a happy hunting ground.

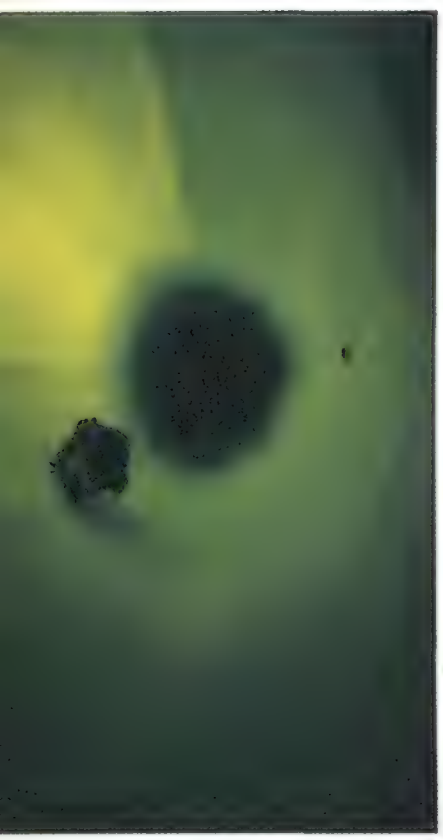
Cozy microhabitats, the hollow leaves of pitchers provide greater relative humidity, a more constant temperature, a bit of shade, even a food supply in the form of trapped, decomposing prey. Eateries, love nests, nurseries: the leaf tubes are prime real estate, attracting steady customers.

Inside its remodeled retreat, the *Exyra* larva feeds on the pitcher's inner skin, leaving the outer shell of the plant intact. The two species of *Exyra* that inhabit only pitchers with long, narrow tubes solve the problem with elbowlike spines, or lappets, on the sides of their bodies. The little bumpers prevent the caterpillar from getting stuck if it falls into an especially narrow space.

Even after becoming a moth, *Exyra* spends most of its time inside pitchers. But where other insects might slide to their doom, "*Exyra* very calmly walks up and down the pitcher walls," says Debbie Folkerts, George's wife, an entomologist who spent a year and a half marking pitchers and tracking *Exyra* moths and caterpillars in an Alabama bog.

"The shape and size of their claws make it appear they can cling to the downward-pointing hairs," a feat other insects cannot manage, says Debbie. But the small moths also seem to rely on a behavioral adaptation to help them negotiate the treacherous walls. They unfailingly orient themselves with their head pointing upward, walking backward to go down inside the pitcher and forward to go up. And while most other moths in their family copulate end-to-end, *Exyra* (which even mate inside pitchers) get together at right angles, permitting each partner to avoid staring dangerously downward into the pitcher tube.

In all, 16 species of insects or other small creatures live nowhere else but within North American pitcher plants. Leaves of the purple pitcher, which may snare hundreds of insects during the warm months, also provide an aquatic home for mosquito larvae belonging to the species *Wyeomyia smithii.* The wrigglers swim through the plant's indoor pool, grazing on microorganisms and suspended matter (the wrigglers' bodies are believed to produce a protective anti-enzyme that prevents their digestion by the plant). In the northern part of the pitcher's range, the liquid within its leaves freezes, and the tenant mosquito larvae spend the long, cold months inside a pitcher-sicle.



An *Exyra* larva (at left) will eat the inside of its host plant. Treefrog uses its host as a cafeteria and refuge.

Adult *Exyra* moths cling inside a plant. Wasp larva thrives on paralyzed grasshoppers left with wasp egg.

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White-topped pitchers (above) are popular with poachers. At right, George and Debbie Folkerts examine yellow pitchers in a protected bog.

In the same purple pitcher container, equally protected flesh-fly maggots hang from the surface of the water, scavenging insect victims of the plant. Larvae of a species of midge inhabit the leaf's lower depths, where they push into the rotting bodies of drowned prey.

All this activity within the pitcher leaves appears to be mutually beneficial, with the plants delivering meals that the tiny feeding animals break down into nutrients in turn used by the plant. Such seems to be the role of mites found in virtually all pitcher plants. Tiny creatures with comblike mouthparts that slide back and forth, they spend their lives wandering slowly through the prey remains within the leaves.

Into this crowded world squeeze other opportunists, like squatters at an apartment complex. Several kinds of spiders work the pitchers, seizing dinners from the stream of insects attracted to the plants. One species even drops on silken lines to retrieve prey for itself. Tree frogs shelter in the mouths of some pitcher tubes, clinging to life with suction feet and, like the spiders, perhaps grabbing for themselves an occasional downbound bug. On the island of Borneo, a species of tarsier, a small primate that eats mostly insects, visits pitchers of *Nepenthes* vines to scoop out and eat fresh prey.

One early naturalist proposed that the liquid-containing leaves of North American pitcher plants served as drinking fountains for wild birds. Birds do visit the plants, but in a search for juicy *Exyra* larvae or pupae hidden inside. To one entomologist, writing more than half a century ago, the sight of caterpillar-sealed leaves "slit lengthwise by the beak of a searching bird" were yet more evidence of the role of the carnivorous pitchers "as focal points of contact between the plant and animal worlds."

Shedding light on such connections has occupied George Folkerts for almost two decades. "There is a real dearth of information on these sites," he says of the Gulf Coast pitcher plant bogs. "We know something about the plants now," but next to nothing is known about microbial life in the bog soil, or how insects are affecting the plant community. "So we're probably missing a big piece of the puzzle."

Content as any *Exyra* caterpillar to spend his days among the nibbling vegetables, the tall, trim zoologist recently showed a visitor some of what he called the "infinite number of interesting things" that occur in carnivorous plant bogs. At a site outside Pensacola, Folkerts squished across the wet ground in size 14 Nikes and mud-spattered chinos; bending down, he parted the coarse wiregrass that hid a specimen of *Sarracenia psittacina*, the low-growing parrot pitcher with its beaklike leaf end. The scientist pointed out the raised flange, or wing, that runs lengthwise along each leaf and that serves, he said, as a "functional drift fence" for rerouting ants, centipedes or other prey.

To demonstrate the bad news about carnivore country, Folkerts drove up toward the Alabama hamlet of Perdido, on the corner of the Florida Panhandle. Parking alongside what as recently as 1982 was one of the Southeast's richest bogs ("You couldn't walk without your legs touching pitcher plants," he remembered), he pointed out how a combination of road building, pond making and cattle pasturing had bisected, altered, tramped down and otherwise brought low the 600-acre privately owned complex.

The plants are unable to bite back at the two-legged omnivore that swallows pristine bogs and spits out pine plantations and shopping malls. For decades, the plants

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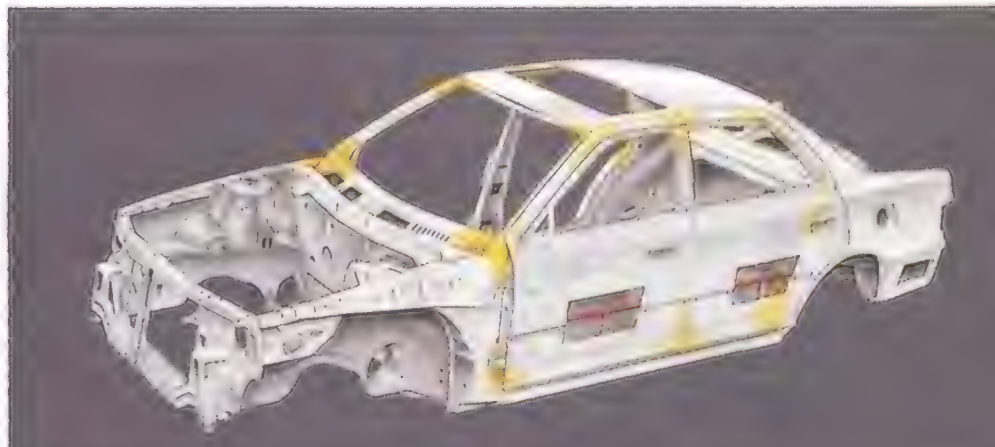

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have been losing the essentials of life—not bugs to eat but a necessary mix of frequent fires and saturated soils that maintain their habitat. Natural fires, ignited by lightning strikes, once pruned away shrubs and pine trees that would otherwise shade out the carnivores. Pitcher plants, with their underground rhizomes, survived such blazes unharmed. But to protect towns and timber or to prevent smoke-caused smashups on Interstates, natural fires that once raged for days in the coastal plain are now quickly snuffed out. As a consequence, the bogs have declined. Many carnivorous plant bogs have been drained so they can be made into pine plantations. Others have been converted to cropland. Carnivorous plants growing on steep slopes had been safe until farmers began taking advantage of such topography to create farm ponds, obliterating the habitat in the process.

Then there is the brisk business in cut tubes of *Sarracenia leucophylla*, the white-topped pitcher plant that, with its colorful network of veins—sometimes green and sometimes a red that ranges from pink to crimson to maroon—is often declared the most beautiful member of its tribe. So striking are the yardlong pitchers that they are widely used in floral displays in this country and in Europe.

Estimates vary, but some authorities in the carnivorous plant world say *S. leucophylla* pitchers are being harvested by the millions, a situation a federal government botanist calls "out of control."

To George Folkerts, "simple logic" suggests that removing the pitchers is not good for *S. leucophylla* plants: "If you have a plant that supplements its resources by catching insects, and then you take off the structures it uses to do that, it's just like taking away its mouth, so to speak."

But to Richard Tarnok, a lanky 33-year-old nurseryman from Carriere, Mississippi, "the worst thing that's hurting these flowers is paper-wood companies plowing them up." Tarnok's family has founded part of its healthy cut-flower business on knowing where *S. leucophylla* grows and on getting the pitchers out of rural bogs and off to wholesale buyers. Not surprisingly, Tarnok is displeased that Folkerts informed the International Paper Company that pitchers were being taken off their land in wholesale numbers, an act that resulted in the pickers being barred from certain boggy tracts they once leased.

In Tarnok's eyes, the scientist is misinformed. The family's *S. leucophylla* harvesting, even though it amounted to some 500,000 pitchers per year, was no more than harmless cropping, maintains the nurseryman. The real muggers of the plants, says Tarnok, are the big guys, the ones turning a bog into a "shopping center, homesite, cow field, farmland, or whatever.

Spines of Venus flytrap mesh to lock prey in; an erect trigger-hair stands in the foreground. While the dead victim is being digested (opposite), the spines straighten.

Whenever all of it turns to asphalt, they're through."

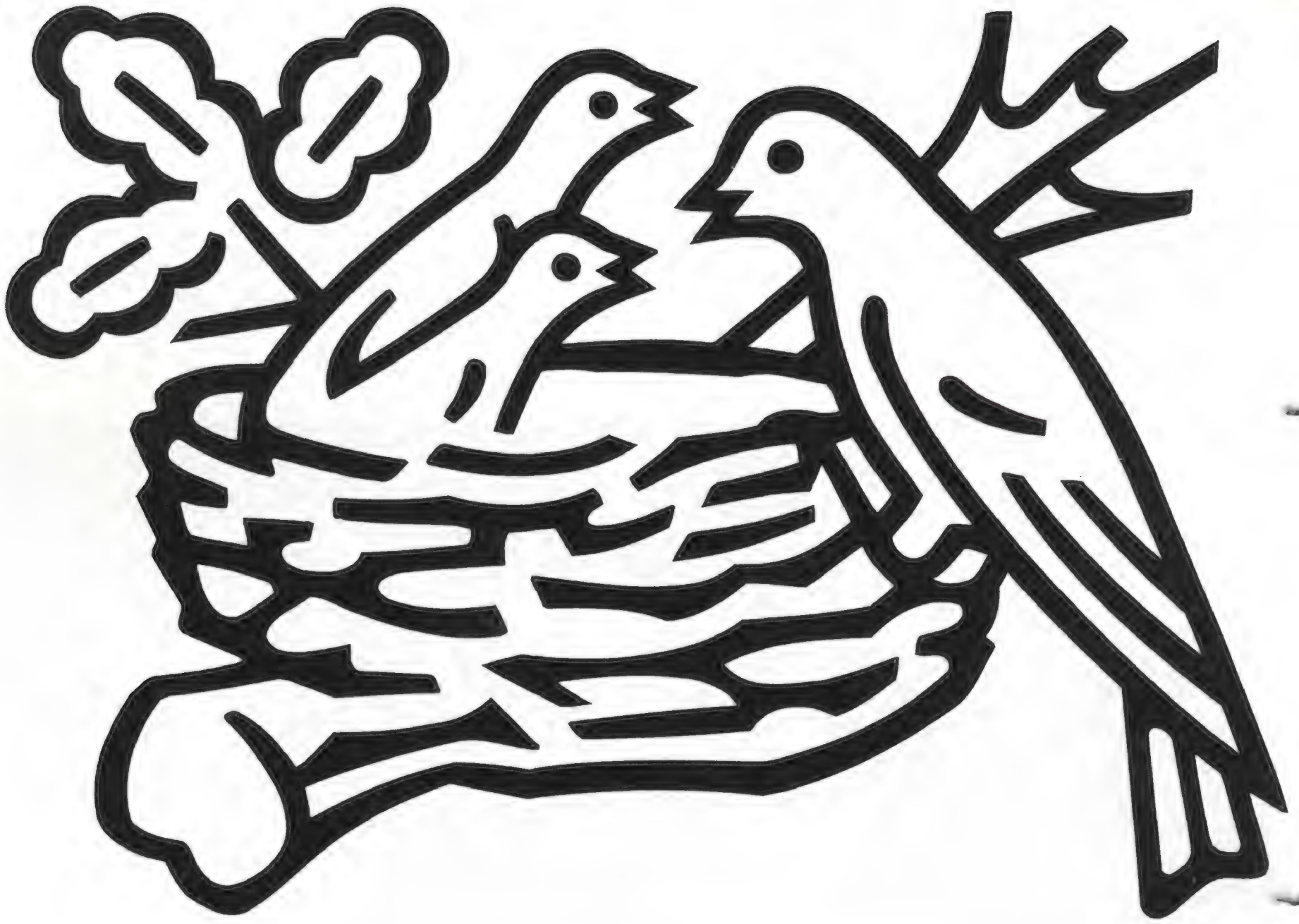
Before that happens, bog lovers hope to lock up some of the region's fading glory within a pitcher plant national monument. (There are precious few such preserves at the moment. The largest, Green Swamp in North Carolina, is 15,722 acres, but it does not include many species of carnivorous plants.) Perhaps consisting of several separate parcels, the monument might stretch like a necklace from southern Alabama—still the prime of pitcherdom—on up to Venus flytrap country in the Carolinas.

Are Americans ready for a monument to killer plants? One believer, botanist Thomas Gibson of the University of Wisconsin-Madison, says the sites would be "pretty spectacular," especially if you bear in mind the unusual aural appeal of the "sounds of millions of insects buzzing as they die in these traps." Close your eyes and you may even imagine a few botanical burps and slurps.

Folkerts is confident the public would flock like nectar-hungry ants to showcase bogs. He has viewed the alpine meadows of the West and watched the desert bloom, "and there's nothing that will beat a big expanse of white-topped pitcher plant bog when it's in full flower and leaf."

Because we humans probably need houses and highways and quick-stop shopping the same way the bogs need an occasional good burn, a carnivorous-plant monument may be the last hope for salvaging some part of that vegetable kingdom that flourished when William Bartram explored the Southeast on horseback, and gave thanks for being resident in this "glorious apartment of the boundless palace of the sovereign Creator." Motoring down toward the Gulf of Mexico after a day among the bogs, George Folkerts slips across the Alabama line into Florida, passes a pulp mill and grouses about the apparently unstoppable growth of the Sunshine State. He tries to recall whether he recently read that some thousand people were moving into the state daily or if it was weekly, and decides it must be daily.

"Did you ever see that Bugs Bunny cartoon where he cuts off Florida at the top of the peninsula and pushes it out to sea?" he asks. "And it floats away?" Folkerts smiles, knowing full well that only in the movies do killer plants ever get the upper hand.



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Makes the very best.

Women in folk dress (opposite) show produce from collective that was part of Chelminski domain. Pillars mark entrance to manor, sketched (above) by author's grandmother. House burned after family fled in 1920.

By Rudolph Chelminski

In newly independent Ukraine, crops are easy to find–but not roots

A journalist visiting the village his family once ruled discovers that decades of hardship have left few traces of pre-Soviet times

As my father lay on his deathbed in a Connecticut hospital, his delirious ramblings were abruptly interrupted by his frighteningly clear call of alarm. "The Cossacks are coming!" he cried. Any duty personnel who might have been near him just then would have been baffled by the pronouncement, but in the family everyone recognized the pathos of that cry, and knew how far back it reached into the past: centuries.

The ancient atavisms abide. That the Grim Reaper himself should approach in the shape of a Cossack horde was so apt that today, more than 20 years later, it still stabs at my heart. It couldn't be helped, you see. My father was a Polish nobleman born in Ukraine. Naturally the Cossacks would come. Sooner or later, they always did.

It has always been a special place, Ukraine, as fearful and dangerous as it was enticing. In his classic novel *With Fire and Sword*, the Polish Nobel laureate Henryk Sienkiewicz describes the "Wild Fields" this way: "The steppes were wholly desolate and unpeopled yet filled with living menace. Silent and still yet seething with hidden violence, peaceful in their immensity yet infinitely dangerous, these boundless spaces were a masterless, untamed country created for ruthless men who acknowledged no one as their overlord."

Photographs by Stephen Chelminski

Sienkiewicz is referring to an untamed region in the southeast that was bounded by more-settled areas: Galicia, Podolia and Kiev. It wasn't until the late 16th century that "Ukraine" (*Ukraina*)—which signifies the edge, the borderlands, the frontier—began to come into general usage as the name of the country. Then, in the 17th century, czarist Russia came clomping in with intent most imperialist. The Russians in those days regarded the Wild Fields as something like an "empty quarter," beyond the pale of civilization.

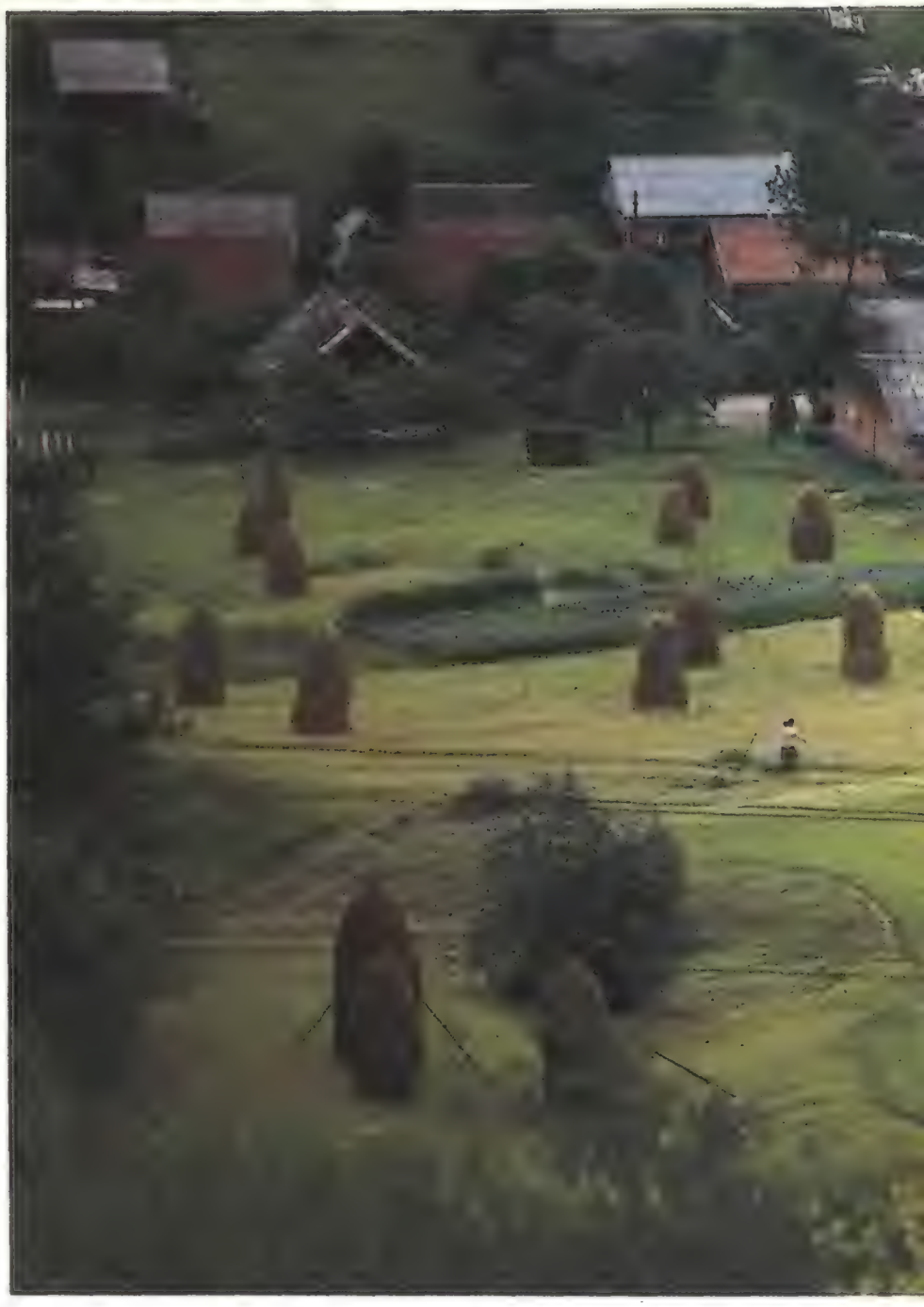
But of course it wasn't entirely empty then, any more than the American West was. For one, the Cossacks (the word comes from the Turkish *kazak*, which means "free men") were there. Those fiercely independent peasant horsemen watched the outsiders come and go. Sometimes they fought the invaders and sometimes they joined them—occasionally in midbattle. If Ukraine was Europe's wild West (or, should we say, wild East), the Cossacks were perceived (by colonialists at any rate) as the Indians, and their relationship with settlers was always edgy and tinged with apprehension.

Trouble was forever sweeping through

From time immemorial, everyone within striking distance has coveted or used Ukraine, a natural East-West corridor bridging the gap between Central Asia and Europe. Tatars, Mongols and Huns swept through as regularly as the tides, rounding up horses, plundering, raping, taking slaves and exacting tribute. They were followed in later centuries by Turks, Lithuanians, Swedes, Poles, Russians, Austrians, Hungarians and, most recently, Hitler's armies of the Third Reich, looking for *Lebensraum*.

Everyone, it seemed, had a whack at running the place except the Ukrainians themselves. Which is where my father comes into the picture, for he was one of the above. Well, the family was, anyway, and even though my father departed as a boy, he carried the ancient manners and dreads with him when he went to America, where he lived the last 45 years of his life. He spent most of those years laboring as a chemical engineer in places like Pocatello, Idaho; Allentown, Pennsylvania; and Moab, Utah. But he never quite shook Ukraine. How could he? It was his Paradise Lost.

Strychowce (pronounced Stree-HOF-tse), the family holding where he, his brother and four sisters were born, lay in the western Ukrainian region of Podolia, just north of the Dniester River, about halfway between Kiev and Lviv. Their likes had been there for centuries; no one had colonized the Wild Fields as assiduously as the Poles. All of Ukraine was ruled by the Poles when union with Lithuania in 1569 created a huge commonwealth running from the Black Sea to the Baltic. History took it away from Poland and for a while even took Poland itself away (the Treaty Finis Polonie was signed by Austria, Prussia and Russia in 1797), but the Polish settlers remained there.



In Carpathian foothill country of western Ukraine, power lines (foreground) are the only sign of modernity.

The result of history's meanders in Podolia was a society stratified into four classes: Polish nobles owned the lion's share of the land, Ukrainian peasants tilled it, Imperial Russians governed it and Jews mostly handled the commerce (they were extremely numerous—in 1880, before the great exodus to America, four-fifths of Europe's Jews inhabited the area of the former Polish-Lithuanian state).

The landed estates that the *szlachta*, the Polish nobility, had carved out for themselves in Ukraine were often big even by Texas standards. Some of the early ones encompassed a thousand or more villages, and their lords commanded sizable personal armies, which ever and anon they would set upon one another after

Rudy Chelminski has written recently about French restaurants, hotel concierges and a horse named Eukie. He makes his home in France.

Hay is still stacked by hand. When Ukraine embraces a market economy, old ways may no longer suffice.

issuing the *odpowiedz* (challenge), duly registered in the district court, which made the ensuing private war perfectly legal in the eyes of the authorities, however many deaths it caused. Little wonder that the systematic anarchy of Poland's noblemen eventually proved fatal to this state. "*Nierzadem Polska stoi,*" the nobles boasted in those days: "It is by unrule that Poland stands."

It was fun while it lasted, though, and prerevolutionary Ukraine was a great place to be a kid—especially when you and your friends were in charge. It meant living in a time warp that brought the last remnants of the Middle Ages right up to the era of the telephone and the motor car. Serfdom had been abolished in Imperial Russia in 1861, but the Ukrainian peasants living on the estates and working in the sugar mills and distilleries still lived like serfs, no matter what the law said. Because labor was so cheap, gardeners, coachmen, handmaids and lackeys of all sorts proliferated in and around the manor houses.

My father's family retained a collective memory of their piece of Ukraine as a kind of Slavic Tara, and in fact there was more than a bit of the Old South about Strychowce. Disingenuously or not, the Polish landowners always viewed their properties as perfect Arcadias of happy peasants, fat horses and rich harvests, justifying the existence of the blatantly anachronistic social order in which they sat at the top. Did any of them know, or could any of them even suspect, that the currents of history were all against them? I have often wondered whether instinct didn't warn them that it was too good to be true, that Arcadia couldn't last. And whether it was not this, the secret childhood dread that he had suppressed all his life, which finally surfaced on my father's deathbed.

If Strychowce and its outlying properties were considerably smaller than the mega-estates of magnate families like the Tarnowskis, Zamoyskis, Radziwills and Potockis, it wasn't exactly a broom closet, either: some 32,000 acres when the whole lot was counted—plenty of room for the wild horseback rambles that everyone in my father's family remembered with vivid nostalgia.

Cantering across the cherry orchard

My late uncle Vladimir left a brief account of his last summer in Strychowce. "Every morning," he wrote, "escorted by a uniformed stableboy, Hela, Roman and I, often accompanied by our tutor, Ciaglinski, went for a horseback ride. We got up very early because of the intense heat and by 6:30 we would be cantering across the immense park, which was prolonged by a forest of centenary oaks, mixed with ash, beech and a few rare birch. For our cavalcades we had all the room we needed to gallop at our ease without quitting the limits of the park, especially since there was an enormous orchard of apples, pears, prunes, apricots, peaches and cherries." (The cherry orchard. How perfect. Whether he knew it or not, Chekhov was not writing for the Russian landowning class alone.)

Like their Russian cousins, Ukraine's Polish landed nobility were swept away in the hurricane of the Bolshevik Revolution, after their properties and lifestyle had already been devastated by the twin calamities of World War I and the general melee of the Ukrainian civil war. The defeat of General Denikin's White Army at Orel in 1921 by the Bolsheviks dashed the last hopes of reestablishing the old order. Fittingly enough, a major cause of Denikin's defeat was the defection of his Kuban Cossack cavalry, which went over en masse to the Bolsheviks in midbattle.

My father, who had been sent to safety in Switzerland at age 11 on the eve of World War I, never saw the place again, but I managed a visit 24 years ago, when I was *Life* magazine correspondent in Moscow. My lightning trip (three hours on-site, then shoo) was obligingly

Farm director Mykola Antonovych Bod' proudly shows off collective's wholesome logo, which he designed.

After picking a bucket of cherries, paramedic Maria Petrivna Zakhebelno hitches a ride back to the village.

taken in hand from beginning to end by the friendly folks from the KGB travel bureau, who ensured that, like Catherine II being escorted through Ukraine by Potemkin in 1787, I would see nothing but the best: a model collective farm operating without the hint of a problem and offering the state an annual profit of 1.5 million rubles. The KGB even threw in musicians, banquet, police escort and about a gallon of vodka.

As much as I enjoyed the Club Medski treatment, it was obvious that I had not gotten anywhere near the real Strychowce or, indeed, the real Ukraine. With the sudden, astonishing collapse of Communism, Ukraine became an independent state as of August 24, 1991. It was time to go take a second look. What, I wanted to know, were the three lives of Strychowce like?

The first life—when it was the Chelminskis' private property—I already knew about, to the extent that family legend and reminiscence accurately reflected reality (it ain't necessarily so). But what about the other two? What about life under Communism yesterday and today's new life in independent Ukraine, struggling with privatization and the market economy?

The market economy was all about us, shouting and hustling in the Budapest railroad station, several hours before we had even set foot on Ukrainian soil. Voyagers descending from the Vienna train were assailed at quayside with offers of private taxis, lodging and money-changing, while scores of backpacking kids from the United States and Europe got their first peek behind what had been the Iron Curtain. The evening express (a term to be used advisedly) to Lviv, Kiev and Moscow was even a better showpiece for supply and

Family brings in hay the old-fashioned way. Trucks and tractors are available, but fuels are expensive and scarce. Equipment at Strychowce is too large to be used on smaller farms that privatization would create.

demand. A sweating squad of Russian entrepreneurs, some in T-shirts and baseball caps ("U.S. California"), hefted carton after carton of Western goodies purchased in Budapest for resale in Moscow: TV sets, stereo equipment, VCRs and God knows what else, all of it occupying the compartment next to ours from floor to ceiling. This was the ground floor of commerce. It was like watching Sam Walton selling his first screwdriver or pair of jeans.

I was in the company of my two brothers, Steve and Michael, who wouldn't have missed the trip for anything. With us we had Uncle Vladimir's description of his last days in Strychowce, a copy of the testament that our grandfather Wladislaw had written for his children before dying penniless in Switzerland—and a split of champagne. At the Ukrainian frontier we drank the bubbly as a symbolic gesture to our ancestry (one excuse is as good as another) and read Wladislaw's elegiac admonition, which I translated from his French text: "My brow reddens to be addressing you in a language which is not ours. May you never forget the past, return to your hearth and home after the tragic years of exodus, take up once again your national culture, guardian of the bronze tablets of history, draw eternal values from this treasure and demand your rights to the heritage that was stolen from me by revolutionary violence and whose titles are reserved on my domains of Strychowce, Andrijowka and Tarasowka, with its sugar factory, in Podolia, district of Uszyca, as well as that of Popudnia in Kiovia, district of Lipowiec: in all, 13,250 hectares (diesiatines)."

Now, two generations and somewhat more than 70 years after Wladislaw, the elegant Pole, had left his domains a ruined man, three of his grandchildren, graying and rather bedraggled Americans who didn't even speak his language, were voyaging on the same train line but in the other direction, back toward Strychowce. We had not phoned or written ahead, so we were sure that this time we would find no Potemkin villages. But what *would* we find?

In the pretty, old university town of Lviv we rented a minivan and headed east. Though traffic was light, the condition of the roads ensured us a slow, stately cruise across the plains shimmering with ripening wheat, buckwheat, corn and sugar beet, and through the wooden villages blooming with flowers of every sort. Our progress was made even more leisurely by the refueling halts that our driver, Dmitri, systematically made at every gas station along the way. You never know: they might have some. Gas is rare and getting rarer in Ukraine. Its price is negotiable. Dollars are good.

Where geese cackled and tethered goats browsed, the shabby, 1950s-style apartment blocks that blighted the countryside beyond the villages still occasionally bore on their roofs the hideous hortatory slogans left over from the Communist days. "*Slava Trudu,*" they read, and "*Slava Rabochemu Klassu.*" "Glory to Labor" and "Glory to the Working Class." The working class was mostly knocking off, though, if eyeball evidence was any indication. Making tea, in particular, seemed to be a deeply preoccupying activity.

There were lines at bread shops and lines at bus stops, the first because the price was always rising (the

At a local park, the author is surrounded by a crowd of youngsters as he takes notes. He is interviewing an old man who once worked for his great-uncle and knows something about the Chelminskis' history.

loaf that had cost 20 kopeks six months earlier was up to 5.5 rubles and still climbing) and the second because the buses never came. The cops had maintained the time-honored Soviet habit of stationing themselves, little red "Stop" disks in hand, at major crossroads to check papers. (The Communist system had required visas on citizens' internal passports for moving from town to town.) Dress styles were slowly changing, with jeans and even baseball caps increasingly in evidence. On occasion the contrasts—a cowherd in racing-striped Adidas and running pants—could be jarring, but that, apparently, was only evidence that the law of supply and demand was at work.

It was opposite a huge, fruit-laden mulberry tree that we came upon the entrance to Strychowce. A road sign pointing left indicated three kilometers to the village. Maria Petrivna Zakhebelno, standing there with a bucket of cherries freshly picked from another nearby tree, asked us for a lift.

Maria Petrivna was great. It turned out that she was the *feldsher* (a kind of paramedic, halfway between doctor and nurse) for the farm, and she knew everything and everyone. Could she lead us to the farm's director or to the local Party chief? That, I realized as soon as I had said it, was a dumb question.

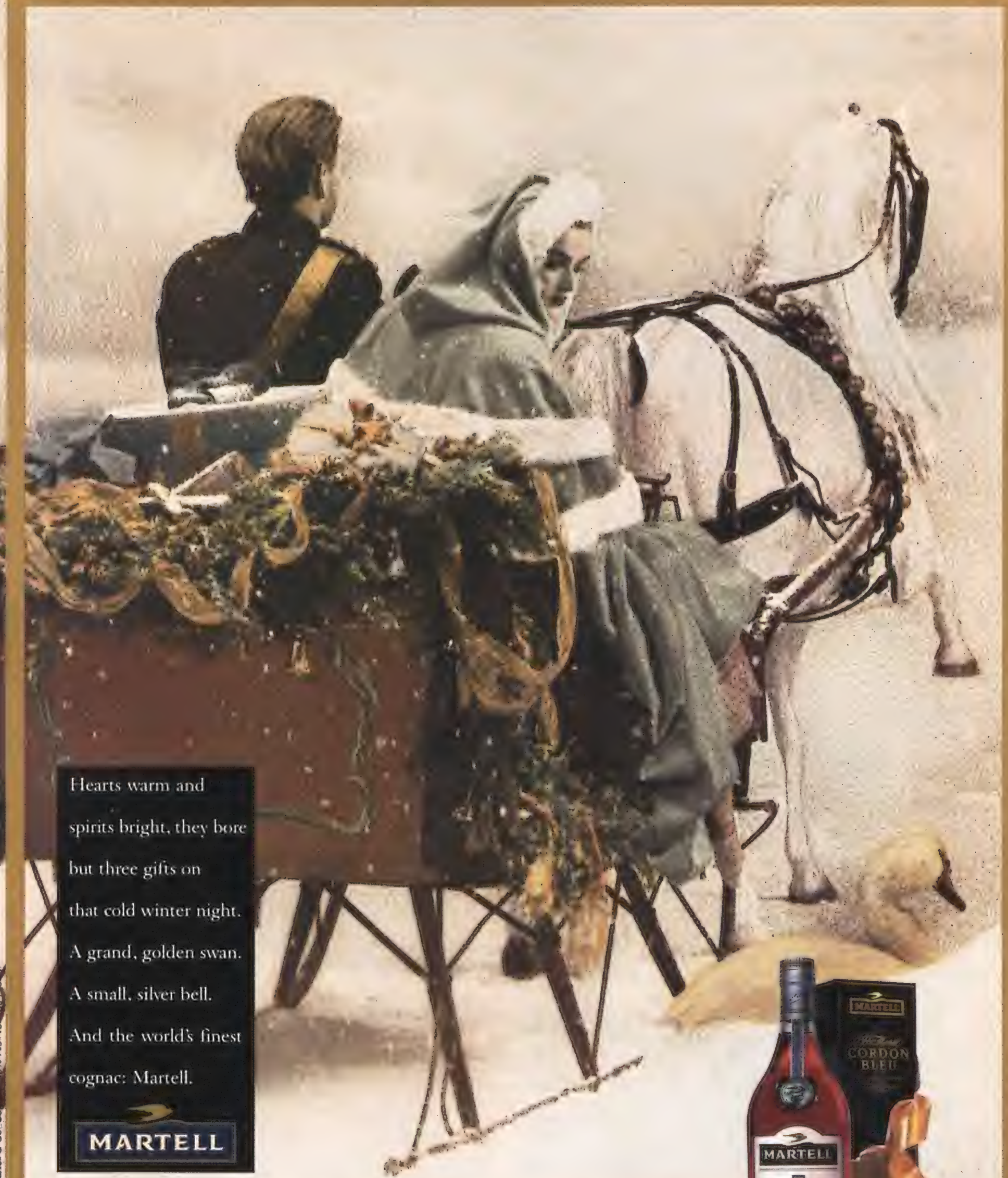
"*Partiya fsyo!*" she cried with an enormous laugh and a blinding display of gold teeth. "The Party is everything!" It was a slogan formerly heard throughout the Communist world. Now the Party was finished, and she was clearly delighted about it. No problem, though. She would show us to the office of Mykola Antonovych Bod', *kolkhoz* (collective farm) director. That title alone was enough to indicate the massive confusion in which Ukraine—like all the other former Soviet republics—is bathing today. Communism was finished, the Party was outlawed, Ukraine was an independent state dedicated to a free market economy, and yet Strychowce was still a *kolkhoz*.

"We're happy to be independent," said Bod', a dark, burly, barrel of a man, "but it's made problems. It's like when a couple divorces. They might be pleased, but life is more difficult."

Bod' rattled off his statistics with ease: 720 people in 470 houses, 20 tractors, 4 harvesters and 5 combines for 1,500 hectares—his bit of the original estate had been amputated from Tarasivka, Andriyivka and the other lands—producing wheat, sugar beet, buckwheat, peas, barley, corn, potatoes and various fruits, in addition to pork, veal and milk. Once the stats were finished, though, he seemed less comfortable. For great visitors such as us, he insisted, it would be good for the conference to include some representatives of the authorities. Presently reinforcements arrived: Oleksandro Aleksiyevych Derevyanko, administrative head of the Yarmolyntsi district, Vasyl Stepanovych Yaduka, district agricultural administrator, and Mykola Yosypovych Syomash, director of the village soviet, the local governing council.

"*Plus ça change, plus c'est la même chose,*" my grandfather's ghost hissed in my ear, because from the moment of the district director's arrival the meeting became a monologue. The social stratifications had

THE ART OF CHRISTMAS, 1715.



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Four-year-old Tanya, daughter of Strychowce's farm director, models folk dress for an admiring friend.

Euhenia Kovalchuk, taking a break from hoeing corn, recalls playing with young Roman, the author's father.

changed, but the lines of authority were just as clear as in czarist times: it was the 38-year-old Derevyanko who was in charge, and everyone deferred to him.

Curious man. Bright, confident, well-spoken but still bearing that indefinable air of defensiveness that had been the eternal mark of Soviet Communist officials encountering Westerners. Smiling ironically, circumlocuting with practiced rhetorical skill, probing, rebutting when there was no call for rebuttal, answering questions with questions, he fenced more than he participated in an interview. "Same old Communist runaround," I jotted in my notebook, and indeed, it turned out that he was a former Party member. All four of them were, in fact.

It was hardly surprising. Under the old Soviet state, anyone holding the least position of power or authority had to be a Party member—no choice. The Party affiliation, then, did not necessarily qualify them as bad guys, but that connection did mean that they were creatures of a command system in which everyone knew his place, his role and what he was supposed to think and say. Now the ground was shifting under their feet, and they were being forced to improvise a market economy. They didn't enjoy that.

Privatization, the buzzword that has all of Eastern Europe agog today, filled Derevyanko with misgivings, some real and many paranoid. The realistic part was never spoken—the fact that in a fully privatized Ukraine there would be no jobs for bureaucrats of his sort. The paranoid part, deep pessimism and mistrust of human motives, was a pure reflection of the Marxist theory and Communist catechism on which he had been reared. "If we privatize," he said, "if we give the land to the farmers, they won't pass their harvest to the state anymore. No one will be able to force them to sell their harvest."

Do old Soviet stereotypes ever die?

Well, so what? He was still reasoning in command-economy terms. The market would be *private* and not a function of the state, I said; surely the farmer would sell eventually, wouldn't he? Derevyanko was unconvinced: "Then he would only sell enough to live on, and keep all the rest back."

"*Spekulatsia!*" piped up Yaducha, uttering a standard swear word of the Soviet economic vocabulary: "speculation." That interjection set the tone for the rest of our meeting. Stocking was hoarding; making a profit was speculation; business was monopolies; competition meant seeking unfair advantage. Strychowce's managers hoped to export canned fruit someday, but they feared that international trade was immoral.

"The U.S. wants to buy cheap from us and sell dear," said Derevyanko with his world-weary ironic

Albert Wittnauer

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Lviv museum preserves genuine thatched homes typical of those found in Strychowce and other farm villages all over Ukraine a century ago.

smile, as if he had uncovered a carefully concealed secret of capitalism. Well naturally, I agreed. Everybody does. That's commerce. You can do it, too.

Long silence. They've got a lot to learn about the real world, I thought.

Even with the Marxist stereotypes set aside, though, Strychowce had plenty of genuine problems to face. The breakup of the USSR had severed lines of exchange between republics. Raw materials were no longer delivered, finished products had lost their outlets, petroleum products were rarer and more expensive, and inflation was worrisome. To top it off, the *kolkhoz*'s equipment was oversize, having been designed for a single large collective. It would not be adaptable to the smaller units, were Strychowce to be broken up into private farms.

"Here we don't have the right equipment," Derevyanko complained, "and you won't sell us U.S. equipment for a cheap price." There it was again. The themes of conspiracy and victimization had been so deeply ingrained during the 70-plus years of Soviet theology that this intelligent man could view as positively sinful the refusal of John Deere or International Harvester to sell their tractors to him at a loss.

I could not resist pointing out that 24 years earlier, when I had made my KGB-guided tour, Strychowce had been presented as a model farm, marching triumphantly on the road to Communism. No, Derevyanko snapped. It was a poor village then, both physically and morally. Today he had to say that collectivization had been a big mistake—but now the problem was that they didn't quite know how to get out of it. "The last 70 years have not been the best of times," he admitted. "The Ukrainian people are sick and tired."

As a former Communist administrator, it was the least he could say on their behalf. The village people may have been underpaid and offended by the dilettantism and posturing of the old days (especially by the notion that somehow the Chelminskis and the other aristocrats *deserved* their place at the top of the heap). They may have suffered on occasion from the special tributes, taxes and arrogations, but their life under my grandparents was pure sweetness and light compared with what came immediately afterward.

The story of the collectivization of Ukraine, when the peasants' private lands were forcibly taken over by the state, has been told many times by now, but even in its familiarity the unspeakable barbarity of the fatal years 1929-33 still sets the mind reeling. What the Jews were to Hitler, the stubbornly independent Ukrainian peasant farmers were to Stalin. Five million to seven million of them died in the collectivization campaign—by direct execution or deportation to Gulag death camps, and in the appalling famine the Communists created by sending the Red Army to impound food stocks (including seed grain), confiscate harvests and guard the fields against the hungry. Picking an ear of corn carried the death penalty. Cannibalism was not uncommon; posters were printed up by the authorities to remind the population that the practice was illegal. Meanwhile, Soviet exports of grain to the West soared to record levels, earning hard currency and demonstrating the great economic success of "scientific socialism." "I knew nothing about how bad it was then," Derevyanko insisted, predictably enough. "In school we were taught that everything had been done the right way."

Uncomfortable with the dark side of the Communist past, he sallied out of the subject by alluding to my own. "I have a question for you," he said. "Are you trying to

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"Those who know us, love us."

Chelminski brothers (from left) Stephen, Michael and Rudolph accept gift from Bod': salted loaf of bread.

prepare us for the idea that you want the land back?"

Heavens, no. I was as American as apple pie, and besides, I didn't speak Ukrainian. What could I possibly do with Strychowce? I wouldn't mind having a look around, though.

In all, my brothers and I spent two and a half days in and around Strychowce, most of the time accompanied by Syomash who, as director of the soviet, knew everybody. It was a typical Slavic farm village: attractive little blue-and-white houses sitting behind picket fences on dusty streets, with wells in the gardens and, here and there, storks' nests in the trees. The dwellings were electrified but lacked running water and consumer items like refrigerators, telephones and TVs. On the other hand, the villagers had Vladimir Ilyich: a majestic bust of Lenin still dominated the local school. Communism was dying a slow death.

To our surprise, Syomash rapidly located for us a person who had direct memories, however vague, of our family. "Babushka!" he cried as he plunged into the darkness of a little farmhouse. "Babka!" At length a striking figure appeared by the side of the house. Euhenia Kovalchuk, bent almost double by her 90-plus years, had been hoeing her corn patch out back when Syomash called her. Now, using her hoe as a cane, she tottered up slowly, peering inquisitively at the unexpected gathering in her garden.

"Chelminski?" she repeated when Syomash introduced us. "Roma. I remember playing with Roma. Long ago."

Goose-pimple time: Roma—Roman—was our father. The toothless old lady, presumably one of the legion of servants in prerevolutionary days, stared vaguely into space, obviously confused. Nothing more came out of her. We moved on.

Not far away lived Nina Vasylivna Stashevska, a widow in her mid-70s who clearly remembered the 1930s. When collectivization came, her father had voluntarily given his land and animals over to the *kolkhoz*, she said, and who was I to gainsay her? Certainly there had been rare cases of such civic spirit, but the nervous glances she cast in Syomash's direction were more eloquent than the words she was speaking. *Perestroika* or not, he represented the authorities, and bitter experience had taught these people that it was prudent to beware of the authorities.

Who wouldn't be afraid? They had seen so much horror, so many betrayals. Collectivization? Oh, it wasn't so bad, she said dully. Not so many people died . . .

Her mother, it turned out, had been one of the gardeners, and she had told her children many stories about the *pany*, the nobles of the manor. There were twin girls, she remembered hearing, and two boys, Roma and Lodya. Lodya had a gap between his two front teeth, didn't he? No doubt about it—that was our Uncle Vladimir, bang on.

"The *pany* used to give my mother sweets or coins," she said. "She loved the family very much. They were so kind to her."

On the other side of the main street lived Valentyna Kovalchuk—half the village seemed to be named Kovalchuk—a 76-year-old widow whose mother had been a handmaid to our grandmother. She received us in her immaculate blue sitting room, surrounded by lace, icons and family photographs. She was rather less reticent about telling what really happened in the collectivization period.

They couldn't even say goodbye

"They came in the middle of the night and took my father away," she said. "We couldn't even say goodbye. I was 16 at the time. We never heard from him again. Then they took away our food and our seeds. Many people died. We survived by eating roots and berries and gleaning old potatoes. Life was much better under the *pany*. We had all the food we needed then, and your grandparents were wonderful people."

Well, that was nice to hear, but given the only terms of comparison she had known—us against Stalin—a swarm of alligators might have come across as wonderful people.

Before we took our leave, Valentyna Kovalchuk set us straight about some local history concerning the family. On my first visit to Strychowce, *kolkhoz* offi-

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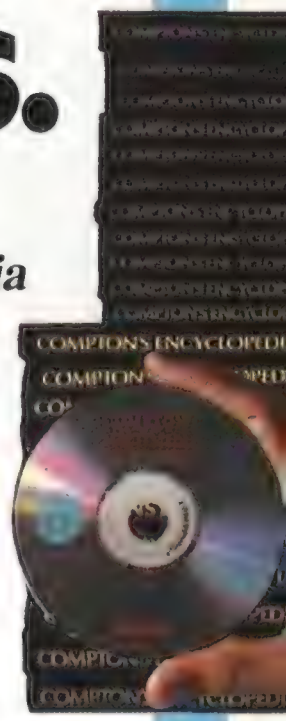

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cials had solemnly assured me that it was the invading Germans who had bombed the sugar factory and burned the manor house to the ground. Not so, she said: everyone knew that the house was burned during collectivization, around the same time that the sugar mill was dismantled and taken away.

We took a walk past some cow barns to where the house had been. At the entrance to the park remained two high stone pillars, painted brilliantly white, and a long dirt track wandered through an unkempt woods to a clearing dominated by an unprepossessing single-story building of whitewashed stone, with a tin roof. Perhaps 50 yards wide, it was now a combination post office, library and administrative center, erected on the foundation of the original manor.

In his testament, my grandfather entreated his children to return to their hearth and home, but even as he wrote, it was already too late. The family had exploded—to America, to Venezuela, to France, Switzerland and Holland—while Grandfather himself was stateless, and would die so.

Today I have cousins who speak many different languages, and apart from a few old ladies' memories, two stone pillars and a foundation, there is nothing to tie the place called Strychowce to a family named Chelminski. That is the way of history, but history has been especially tumultuous in Ukraine. In three generations, Strychowce had been yanked from something resembling the Middle Ages, had taken a disastrous detour into the radiant future of Communism, and was now headed—where?

I don't know, but I am willing to bet that the bust of Lenin won't last as long as those stone pillars did, and that friendly memories of my poor, misguided grandparents will be more numerous than those of the Communists. If the *szlachta* were deluded in their claim to Ukraine, the delusions of the Soviets were far more presumptuous, and murderous to boot.

It was damn well time, the three of us agreed as we drove away from the farm, that the outsiders dropped their claims once and for all, and let the Ukrainians get on with the job of running the place themselves. How they go about it is their business. May 1993, Bod' had told us, will mark the 500th anniversary of the village. Good. That will be a fine starting point for Strychowce's third life.

Farmer hauls a load of corn along a paved road not far from Strychowce. Slope-sided wagons with wooden wheels are standard equipment in Ukraine. Horses are slow but use no gasoline and seldom break down.

It’s designed to make the most of an invaluable piece of equipment you already have.----------

Let us begin with the obvious. There is a vision inside your head. There is a world outside. The challenge is to find some way to bring them together.

You see, anyone can ride a motorcycle through a tunnel. But only someone with determination, conviction, and no small amount of courage can hang off the back of a motorcycle riding through a tunnel at 45 miles an hour and come out at the other side with part of his imagination on a small piece of film.

Someone with a great deal of talent, and a little luck, that is. Not to mention a rather extraordinary camera.

The same kind of camera photographers have been depending on for the last four decades. A Nikon.

In this case, a new Nikon. The N90.™ You can depend on it because it shares the heritage of all Nikons. Because it was crafted with the same concern for quality. Because it was designed in the Nikon tradition of performance.

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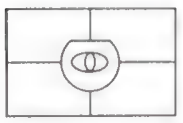
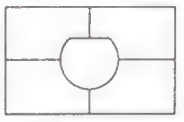
And you can depend on it because it shares Nikon's timeless F bayonet mount. So while no other camera system can match the new N90, nearly every lens Nikon has made since 1977 can. Even our new remarkably high-speed AF-I Nikkors with razor-sharp Nikon ED glass and built-in computers, as well as Internal Focusing.



With an 8-segment ambient Matrix Meter, remarkably powerful Nikon software, and the only 5-segment TTL flash sensor in existence, the new Nikon N90 provides you with an unprecedented degree of control.



But while the N90 may be intimately connected to Nikon's history, it is also a dramatic step towards the future. Its high-powered computer controls an innovative metering system; it has the world's first full-time multi-segment flash sensor; and it uses extraordinary technology in a completely new way for better exposures. Technology designed to let you walk away with a shot from

The new Nikon N90 is an extraordinarily complex system that's born of a rather simple fact: The world's greatest pictures can happen in a fleeting instant, and then they disappear forever. So if you want to capture them, you need a tool that can help you react that fast. This is that tool.

situations you would ordinarily just walk away from.

The N90's new advanced Autofocus Detection System was designed for just that purpose. It focuses accurately and precisely in an instant. Its Wide-Area Focus Detection Sensor covers nearly 20% of the frame width, allowing for more creative composition, even if the subject is off center or moving.

A spinning gymnast struggling to get

The exclusive Nikon MF-26 Multi-Control Back lets the N90 auto-bracket ambient and flash exposure settings. In addition, it lets you Freeze Focus, set long exposures up to one second shy of 100 hours, imprint selected information on your photographs, and perform several other functions.

Nikkor lenses are made to exacting standards of quality and sharpness. With the F bayonet mount, the N90 accepts nearly 80, including all of today's AF, AI, PC, Micro, and our Medical Nikkor lenses. Not to mention tomorrow's.

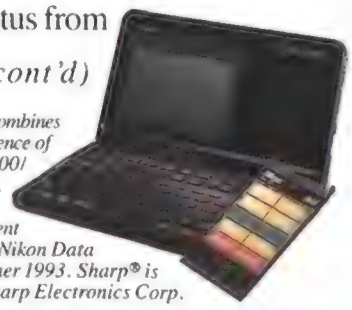
hold of the high bar ten feet up, for instance.

And there are none of the dead spots found in other systems. So even in light that's as low as EV minus 1, the camera is able to focus more reliably on critical details, like the widened eye of a six-year-old watching that gymnast.

The N90 also boasts the latest in metering technology. With its new Advanced Matrix Meter, any AF Nikkor lens, and extraordinarily powerful Nikon software, it analyzes exposure instantly and accurately, even in complicated or rapidly changing light situations. Times when you have no time to think, let alone meter a scene. Yacht racing off San Diego. Running with the bulls in Pamplona. Saturday morning soccer games in Rockville. Things like that.

With new D-type AF Nikkor lenses, Matrix Metering moves into a new dimension. Literally. It becomes 3D Matrix Metering. By combining focus distance information provided by the lens with focus status from the electronic *(cont'd)*

The Nikon Data Link System combines photography with the convenience of palm-sized Sharp® 8000/8200/8600 Electronic Organizers. Control MF-26 functions remotely, customize 15 different camera settings, and more. Nikon Data Link System available summer 1993. Sharp® is a registered trademark of Sharp Electronics Corp.



[Introducing the Nikon N90 System]

Joe McNally had always imagined this shot, but had never tried it. "It's kind of difficult to adjust for changing light when you're hanging off the back of a bike." Not necessarily. With its revolutionary 3D Matrix Meter, Electronic Focus Detection, 5-segment TTL Flash Sensor, off-camera TTL flash operation, and high-powered computer control, the N90 can respond instantly. So Joe let the N90 worry about the proper exposure. He was too busy worrying about falling off.

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Standing 40 feet above the canyon floor after climbing straight up a sheer-faced sandstone cliff onto a very narrow ledge with precious few seconds of rising sun, Galen Rowell says that he was "confident." Makes sense. He had the N90's revolutionary new 3D Matrix Metering working for him, along with a 28-70mm f/3.5-4.5 D-type AF Nikkor lens with aspheric elements, and integrated coatings developed by Nikon. Of course, we really ought to point out that he wasn't looking down.

rangefinder, the N90 actually recognizes when you've recomposed. It compares the lighting patterns from your original composition to those in your new one. That way, the vision in your head will be beautifully exposed when you put it on film. Even if that vision calls for creative composition.

Stop. Consider, for just a moment, what you could do with that kind of advanced metering technology.

Now imagine the same technology, but

The moment Brett Froomer visualized this shot, he knew he would need two things. First, a camera system with a remarkably fast and responsive wide-area autofocus system. And second, somebody with the guts to jump a kayak off of a 15-foot drop into some rather choppy white water. Lucky for him he had the new N90 with a remarkable CAM 246 Wide-Area AF Sensor, and its 3D Matrix Metering with a 300mm f/2.8 AF-I Nikkor lens. Not to mention an incredibly bold kayaker.

You would imagine that shooting an unpredictably moving windsurfer while following him in an erratically rocking boat with rapidly changing light patterns would be sheer hell. But by using the N90's innovative 3D Matrix Metering, CAM 246 Wide-Area Autofocus, Multi-Sensor TTL Flash with the new SB-25 Speedlight, and a 35-70mm f/2.8 D-type AF Nikkor lens, photographer Roger Ressmeyer made the experience pure paradise. Then again, he was shooting in Hawaii.

in flash photography. By way of the world's first 5-segment TTL flash sensor, the N90 actually performs Matrix-like analysis of the scene to determine ideal flash output. No system has ever done that. And the N90 does it with unparalleled accuracy in milliseconds.

With D-type AF Nikkor lenses and the SB-25 Speedlight's unique ability to fire as many as 16 invisible pre-flashes in the instant before the shutter opens, something rather remarkable happens. The N90 analyzes the reflections from those pre-flashes, performing 3D Multi-Sensor TTL Automatic Balanced Fill-Flash.

What that means is that through an unprecedented combination of technology, you can get shots you would never have even dreamed of trying before. A flash picture with a mirror in the scene? A severely backlit portrait? A bride in white running through a shower of rice as the sun sets?

Agonizing shots become cakewalks. Mental images become magazine covers. Pulitzers. Framed 8 by 10 glossies sitting on the mantelpiece.

Another way the N90 turns your ideas into pictures is with a new Vari-Program that gives you all the convenience and spontaneity of programmed operation in a variety of special situations. It's perfect when you're shooting close-ups, sports, landscapes, silhouettes, or shots with a great depth of field. There's even a setting for portraits with red-eye reduction.

What's more, with the Nikon Data Link System, you can even connect the N90 to selected Sharp® Electronic Organizers. So you can write your own custom program exposure curves, record and recall key shot specs, even consult a brief set of instructions or a photographic handbook.

You can also control practically every major camera function remotely. In essence, approach photography with more creativity than you would ever have imagined possible.

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That's the reason we created the N90 in the first place. That's the reason you should have it. To turn ideas into art.

To put the vision in your head on film.

To let other people see what you've been seeing all along.

See the new N90 at authorized Nikon Dealers wherever you see this symbol. For more information on the N90, and the exclusive Nikon MasterCard, simply call 1-800-NIKON-35.

"I held the trigger down. Flashes sparkled on the Tony. It slid sideways, shoved by the impact of bullets. Something flew off it and whipped past me. Then it rolled inverted and plunged. A parachute blossomed."

By Edwards Park

I moved far away from soaring ideals— I became a warrior

Like many another college boy in 1939, Edwards Park began World War II toying with pacifism; he ended as a fighter pilot

The little shape fled past me far below, streaking northward, low over the mountains. It was well-camouflaged—dark green with yellow blobs—and I'd have lost it against the jungle except for the red circle painted on its wing. I kept my eye on that.

Banking vertically, I let the nose of my plane drop and ruddered into a straight dive with the sun behind me, snapping on gunsight and gun switch, jamming the throttle full forward—"through the gate," as we used to say. My motions were quick and sure. The trembling, the jerkiness that had troubled me lately on routine flights, were gone. I was like silk.

I settled behind the Japanese plane and watched it grow large in the circle of light that my gunsight cast on the windscreen. It flew straight. No quick climbing turn or wingover. The pilot hadn't seen me.

"I've got you coldcock, you bastard," I muttered.

I guess this was one of the most remarkable moments in my life—not the action, right out of pulp magazines like *G-8 and His Battle Aces* that I'd read as a kid in the '30s, but my reaction. I was accepting the prospect of destroying another human being as coolly as if I'd

Illustrations by Arthur Shilstone

"It was OK for me to play at Allies and Germans with my friends, going 'over the top' with wooden guns."

never known peace, had never been raised amid gentle people, had never watched the sun set over Mount Monadnock or heard the song of a hermit thrush sighing from the cool woods . . .

My father was a Boston minister with a summer place in New Hampshire that became his childrens' truest home. Dad was a working pastor with a city parish, a sincere man of God. Also a devotee of Emerson, for he was a scholar, a historian. He never thumped the Bible at our dinner table, but often, to Mother's distress, he would leave a hot meal half-eaten and fetch a book—there was always one at hand—with which to verify a quotation or make a point.

Meals were noisy. I was the youngest, by six years, of four uninhibited siblings. We had all inherited a dramatic streak from Mother, who was a star of every charade, the world's best reader-aloud. Our house rang with loud discussion and amiable argument. We struggled over the *Saturday Review of Literature*'s acrostic. We scrambled for the *Saturday Evening Post* to sneak a look at the latest Clarence Budington Kelland serial before Mother got hold of it.

News headlines of the Depression-ridden '30s often required Dad to defend his loyalty to the Democratic Party. To him the Blue Eagle on Mr. Bryer's store, signifying compliance with the NRA (back then the initials stood for National Recovery Administration), was a symbol of President Franklin Roosevelt's efforts toward a better world. Mother, daughter of a manufacturer, considered it a grim reminder of the creeping socialism espoused by "that traitor to his class." Yet they fully agreed on broad issues, many of which remain today: population control, equal rights for women, higher standards of education, an end to racism—and of course to war.

We young learned either to solve our normal conflicts quickly or keep them to ourselves in the tight-lipped manner of New England. Violence of course was unthinkable, except on the football field or when playing adolescent war games in which no one got hurt.

A war too terrible to describe

The Great War ("to end all wars") lay considerably less than 20 years behind us, the horrors of trench warfare far fresher to adults than those of Vietnam are today. An uncle had served in France, and I'd been told never to question him about it because it had been too terrible to describe. But it was OK for me to play at Allies and Germans with my friends, going "over the top" with wooden guns. The old war songs often rose from our Buick with the top down. If you concentrated, you could sing "Keep the Home Fires Burning" while someone else sang "There's a Long, Long Trail," and you'd produce a duet in magical harmony.

One of Dad's perks was private school for his children, and at mine I was taught by many veterans of 1917-18. One had been shell-shocked, as it was then called. Veterans of Vietnam would understand this quivering wreckage of a former athlete; we schoolboys giggled behind his back at his jumps and twitches, and wanted no part of what had caused them.

I was a poor student, yet I was moved by Erich Maria Remarque's *All Quiet on the Western Front*, by poems of Rupert Brooke, Siegfried Sassoon, Wilfred Owen, and uncomfortable short stories by a new writer named Ernest Hemingway. The school drama group put on a play set in the trenches, with thunderous sound effects, a great deal of understated British heroism, and final tragedy. Not a lad of us went to bed that night without vowing never to don a uniform.

Yet many such resolves faded in the withering truths of the Great Depression. My oldest brother graduated from Yale at the worst of times, and found no job except in the U.S. Marines. As an aviation cadet he learned to fly the old Vought biplanes of the day, but then his flying class was cut short because the money appropriated for it, back then in the early '30s, simply ran out. My brother came home, and I treated him with awe and envy. I used to wear his khaki puttees when I cut brush at the neighboring farm to earn a few bucks for a date.

The Boston paper, which we bought down in the village every morning, began sometimes supplanting the fortunes of the Red Sox with news of a former corporal in the German Army. There were photographs of Brownshirts massed together with hands raised, of the Reichstag on fire. There were new words—"putsch," "pogrom"—and at school our teachers supplied worried, uncertain answers to the questions we now raised.

In 1935 I squeaked into college, following my father and brother to Yale. Headlines and newsreels warned of the growing tension in Europe, of the threatening Japanese in Manchuria, the Italian invasion of Ethiopia, but we freshmen embraced pacifism with ardor. Many classmates were in ROTC, the Reserve Officers' Training Corps, and I chided one about his militarism. "It's the money," he apologized. "ROTC pays for part of my tuition."

He and others loaned their uniforms to those of us who marched around the campus calling ourselves the Veterans of Future Wars. My old college yearbook recalls this cynical student group, popular on Eastern campuses, whose members paraded on crutches, eyes bandaged, smeared with fake blood. It was fun. But

"We marched around campus on crutches with fake blood, calling ourselves the Veterans of Future Wars."

in the summer of 1936, as the bewildering Spanish Civil War erupted and Adolf Hitler sent his planes and pilots to join Franco and learn warfare, our "VFW" seemed merely silly.

In junior year, 1937-38, the Nazis marched into Austria, and Hitler eyed Czechoslovakia. That September, Neville Chamberlain knuckled under to the Nazis at Munich (SMITHSONIAN, October 1988), and the Yale Political Union decided he was right to give in. Anything was better than war.

Our elders, however, were backsliding before our eyes. In a writing seminar, a classmate produced an antiwar essay. We applauded. The professor raged. "Is your generation blind to the facts in Europe, and to your responsibility to your country?" Certain of undeniable rectitude, we blazed back that it was our country's responsibility to keep us out of war.

A year later, in the summer of 1940, this conflict between generations came fully to light. Richard M. Ketchum, in his superb book *The Borrowed Years, 1938-1941*, recalls an interchange of opinions published by the *Atlantic Monthly*. A Yale professor challenged the isolationism and pacifism of the current college generation that had petitioned the President

Contributing Editor Park writes the Mall column. He has authored a score of articles for SMITHSONIAN, *as well as* Nanette, *a pilot's memoir of World War II.*

"We built an ingenious tank trap that threw the tread off a 'medium' from Fort Meade. We 'opened fire' with a wooden mock-up of an antitank gun. We yelled 'Bang! Bang! Bang! Bang!' at it."

not to get involved in Europe's war. The student editors of the *Harvard Crimson* and the *Yale Daily News*, Spencer Klaw and Kingman Brewster (later to become Yale's president and our Ambassador to Great Britain), replied, supposedly for all American college students, that we'd be damned if we'd venture into a distant, foreign war. The best thing for the United States, they insisted, was "to take our stand on this side of the Atlantic."

World War II was nearly a year old then. German tanks and infantry had swept across the Polish border on September 1, 1939, three months after I graduated. I remember that on the war's first weekend, while German planes were bombing Poland's defenseless cities, I sprawled on a New England beach with my oldest brother. It was a bright, still day, September-cool (wars always seem to start in beautiful weather), and as we talked lazily, a plane flew over us.

"If we get in, I'm going to fly," I said, not really meaning it. "Of course," he said, not really listening. We both knew we weren't going to get in. FDR wouldn't dare. Congress would never allow it. Not long before, they'd seriously considered a bill forbidding the United States from declaring war unless the country had actually been invaded. Anyway, everyone knew France had the impregnable Maginot Line and the world's biggest army, didn't they? The French would stop Hitler.

I got a job teaching English and science at a small boarding school in New Hampshire. I was surprised to find myself a pretty good teacher, though not much older than my kids. The faculty was a delight, the skiing great, life joyous. December snow blanketed the village that year, and our bright windows glowed on it so that we lived in a Christmas card. Nothing occurred in Europe to dispel that illusion. The war was phony. It would blow over. Peace on Earth . . .

Then one spring morning in the dormitory bathroom, as I was shaving carefully around my new (surprisingly red) mustache, one of my boys burst in with wide eyes. "He's taken Denmark, and he's invading Norway!" And I could only stare, marking the moment as the true beginning of the unthinkable.

Congress passed our first peacetime draft bill as I began my second year of teaching. All of us male teachers registered. All drew low-priority numbers except me. Mine was so high-priority that everyone came to look at it. "You should become a conscientious objector," said the French teacher.

I thought about that uneasily. I had courage enough to ski down a steep trail, flat out, but I knew I didn't have the guts to be a "CO." Anyway, the draft was only for a year. Being in the Army might not be so bad. It might be good for me.

When the draft board in the state capital called me, I drove down to Concord and met a kindly Yankee lady behind a counter. "You want a deferment until the end of the school year, don't you?" she said. I think if I'd said no, she'd have considered me dangerously un-American.

As the summer of 1941 approached, American troops were being sent to Greenland to set up air bases so we would be able to protect convoys from U-boat attacks. Lend-Lease had finally passed, and a little life seeped into the country's comatose economy as factories began to churn out arms for Britain. What a wonderful role for America, I thought, FDR's "Arsenal of Democracy." Keep out of war, but supply Britain.

In early June, when lawns were deep green and sugar maples misty with new leaves, the faculty went to an elegant garden party to raise money for aircraft to be flown to Britain. The guest of honor was a most attractive lady flier whose job was to ferry war planes across the Atlantic. I buzzed around her, overloaded with charm, but she wasn't interested in an obvious lightweight who had never done anything worthwhile. Next day, when I took my Army physical, I thought of myself as Beau Geste about to join the French Foreign Legion, and hoped she'd hear of it and feel sorry.

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An Army doctor prodded and peered at me and announced that I was fit. Pacifist or not, I was in.

After all, it was only for a year, and saying goodbye to girls in those days, when a kiss was pretty hot stuff, turned out to be gratifying. One girl, nestling close in the moonlight while the car radio played "I'll Be With You in Apple Blossom Time," murmered, "Don't go into the Army." And after pondering for a moment I found myself answering, "I think I have to."

Fort Devens, Massachusetts, in the heat of July 1941, was breathless, dusty, crowded and inefficient—an old-time Army post trying to become a recruit receiving center for hordes of new draftees. We were issued heavy blanket-wool uniforms left over from FDR's Civilian Conservation Corps, and my memories of the place are blurred by the unforgettable sensation of rivers of sweat running down my legs. We learned to march (left foot on the heavy beat), to halt ("I don't want to see anyone sway forward when those boots come together!"), to face left, right and about, and to salute ("If you can't see the palm of your hand, you ain't doin' it right!"). We had no rifles.

After ten days of this, my name was called for a shipment for basic training: Fort Belvoir, Virginia, cool suntans and a beautiful, clean, much-handled Springfield .30-'06. A crisp, well-organized program run by a cadre of professional soldiers in the Stetson hats we later saw in *From Here to Eternity.*

I have surprisingly kind memories of basic. With every mom in the nation watching, the government treated its new draftees cautiously. First Lady Eleanor Roosevelt even designed a floppy hat for us to wear in the heat. Our platoon sergeant would carefully explain the day's problem: building a gun emplacement covering a crossroad "under fire," perhaps, or a pontoon (pronounced PON-ton) bridge across a stream. He'd show us how to do it by the book, and then look away as we did it our way. I remember the sign he tacked up in the latrine: "Don't Throw Buts in the Unireal." Our lieutenant had done ROTC somewhere in West Virginia, and his favorite expression was "Great balls of fire!"

For the first time in my life, all that was demanded of me was not to think, and it was a pleasure. I was paid $30 a month, and I was proud to march 23 miles with 64 pounds of equipment, to strip weapons blindfolded and handle dynamite with the confidence of Robert Jordan in the current Hemingway best-seller, *For Whom the Bell Tolls.* I loved the field kitchen stews, hot, greasy, crammed with the calories we craved. I gained 15 pounds but wore the same size pants.

Playing soldier in the Corps of Engineers was something to tell girls about when it was over; something perhaps to write about. One day my platoon hiked a long way to the tank-obstruction course and built an ingenious tank trap that threw the tread off a "medium" from Fort Meade. We "opened fire" on it with a wooden mock-up of an antitank gun. We yelled "Bang! Bang! Bang! Bang!" at it, and the lieutenant danced in excitement, shouting, "Gray-at balls of faaaah! Y'all did it!" and relieved us of having to stand retreat that afternoon. I even liked standing retreat: the swing and thump of a John Philip Sousa march, the long wail of commands followed by the crash of 10,000 Springfields coming to "present," the flag reluctantly descending in the low sunlight. Then we'd do a march-past, dust rising around the khaki ranks, snapping "eyes right" at some nameless Congressman conjured up to take the review. I described it all, rather archly, in letters home.

"I heard a rattle like a gust of hail, and was astonished by the sudden pocks and craters in my wings. I got back to base and landed (on two flat tires), and found the plane was riddled with bullet holes."

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U.S. Marines were in Iceland by this summer of '41, and our navy was soon opening fire on every U-boat it spotted, while oil and wreckage from dozens of sunken freighters began washing ashore on our Atlantic beaches. Basic training kept me too busy to ponder these events. But I was not surprised when, after a fight in Congress, my term of service—that cherished 12 months—was stretched to 18.

In the fall of '41 I came home on leave with a slight swagger, a trained combat engineer. "You look wonderful," everyone said. I saw my Great War uncle and asked him straight out what it was like in France in '18. He beamed at me and poured out memories of the field artillery in the Rainbow Division. "No one's ever asked me about this before," he said, puzzled.

I had read about Charles Lindbergh's appearance back at Yale. He'd enumerated all the sensible reasons why we should stay out of war, and some 3,000 students had given a thundering ovation to our greatest national hero. He was an American ideal, his stubborn courage tempered by cleverness, his brilliant success muted by modesty. You had to take his careful judgments seriously, and millions in the America First movement did.

Yet each day seemed to bring war inexorably closer. I saw it coming, but always with a comfortable sense of unreality, as though it were a story being read aloud. Just you wait. Things would come out all right.

From an old vet: "By God, you're lucky!"

When a group of us soldiers returned to barracks on the afternoon of Sunday, December 7, and heard the reports streaming over the dayroom radio, we were no more prepared for the real thing than the people at Pearl Harbor. Some old noncoms, veterans of 1918, were listening in. One turned to us young soldiers: "By God, you're lucky! I wish I was your age!"

My collegiate pacifism seemed very far away; the dread of a uniform had long passed. I wore one comfortably; I knew the ropes, the people. And as word came of the casualties from the Japanese attack—2,400 Americans dead, more than a thousand wounded—I felt an emotional tug to . . . well, *do* something.

I'd already made a move, asking for a transfer from the Corps of Engineers to the Army Air Corps. When it came to flying, I typically recalled a scene from some movie like *Hell's Angels* or *The Dawn Patrol.*

It's 1916. The battle-weary squadron commander greets the eager replacement, fresh from Eton:

"How many hours do you have?"

"Seven, Sir."

"Very well. There's a bit of tea in the mess. The chaps will be landing soon from patrol."

And then to the executive officer:

"Here we met the duty pilots: a dozen or so young men in a variety of ragged clothing, shiny with sweat.

"Good God! When will they stop sending these children off to die?"

Great stuff back home at the old Gem Theater, but worrisome for me as I reenacted it mentally that December day.

Somewhat to my surprise, I felt that flying might be the thing that, at last, I got to be good at. Then I might talk to that beautiful lady pilot if I ever saw her again (which I didn't). Moreover, like everyone back then, I sincerely wanted to do my best for the country.

As an aviation cadet I was no star. The best fliers usually became instructors, with a good chance to stay

Seated on canvas cots, they were talking desultorily or reading, playing bridge, solitaire, Monopoly."

alive. The adequate—my crowd—went into action. Those who could fit into a small plane became fighter pilots. I was just the right size. A fighter plane had only one seat, so you learned to fly it by yourself. I worked at it with an intensity that, back in New Haven, would have earned me a Phi Beta Kappa key. I learned my tech orders, noted every small problem that cropped up in the air and drilled myself to cope with it.

One morning a fighter flew over with what we called a runaway propeller. The healthy snarl of its engine rose to a scream, and smoke feathered behind it. We watched in horrible fascination as it rolled lazily on its back, half a mile away, and dove straight into the ground. It took two long seconds for the sound to reach us, and I've never forgotten the tortured shriek of that engine, continuing even after we saw the mushroom of flame that ended it—that ended a life. It was like getting a letter from a dead man.

I didn't write home about that but pored over the procedure for a runaway prop: throttle back, nose down to keep air speed, switch to manual control . . .

The Army Air Corps said that a pilot would have 300 hours "on type" (in my case a beautiful but nervous little P-39, Bell Airacobra) before being sent overseas. But 1942 wasn't a banner year for the United States, what with the loss of the Philippines, the Bataan Death March, the debilitating, seesaw fighting that went on in the Solomon Islands. I was sent overseas with 42 hours. I'd never even fired the guns. Good God! I said to myself. When will they stop sending us children off to die?

When I hear the song, I see the faces

And so it came about that, one afternoon early in 1943, in the thick heat of New Guinea, I entered a thatched alert shack beside an airstrip and, with five others, presented myself as a replacement in the 41st Fighter Squadron of the 35th Fighter Group, then based in Port Moresby. Here we met the duty pilots: a dozen or so young men in a variety of ragged clothing, all bare to the waist, all painfully thin, all shiny with sweat, all seated on bare canvas cots, talking desultorily or reading, playing bridge, solitaire, Monopoly. A scratchy windup phonograph endlessly repeated "San Antonio Rose," apparently the squadron's one record. When I hear the song today, I see the faces.

Perhaps because of my mother's dramatic flair, I'd played roles all my life and done so with exceptional relish. I'd played the college boy to the hilt. As a schoolteacher, I was Robert Donat doing Mr. Chips. But these quiet, skinny guys were not acting, and I was now joining them. No role; no living room for a stage; no audience of loved ones.

I was made a member of Red Flight. A flight was four planes; four flights made a squadron. To keep a squadron flying regularly, we had a total of about 25 planes and 30 pilots. The veterans seemed to have been here forever, but actually it was only a matter of months—combat flying warps time. These fellows had seen the squadron packed and ready to move, so close had come the Japanese. The clouds of danger still lingered over them, drawing them together, heightening their feeling that in this nonpriority theater of the war, they were a small family of forgotten men. Nothing much mattered to them except survival.

To us replacements, they were courteous, even con-

cerned, for the more of us who lasted, the more of them would ship out. But we couldn't yet approach their instinctive skills in the air. And after the long days were done, they talked to us only professionally, whereas with each other, they shared deeper intimacies than I'd ever heard: fears, hang-ups, sexual fantasies. It was as though they knew every bone of each other's bodies.

Their job, which I now faced, was partly to defend Port Moresby from Japanese air strikes, partly to escort C-47 transports that lumbered daily over the towering Owen Stanley Mountains crammed with Australian infantry. Japanese troops from the island's north coast were clawing toward the gold-mining settlements of Wau and Bulolo. The "Diggers" were holding them—barely. Flying cover for this supply line was nerve-racking because of the terrain below. Over those mountains, still only sketchily mapped, an engine must not fail, a bullet must not strike. You might bail out, but there was faint chance of rescue.

I'd wake in the middle of those sweaty tropical nights, stare into the blackness, contemplate the mission I faced at dawn and wonder if I'd return to this drab cot for another night, another awakening. Even as a veteran I did this. I did it for 18 months.

The early missions were the most dangerous. Somehow, with peer pressure and a lot of luck, I got through them. I saw my first enemy plane, a mere contrail 20,000 feet above me, and was glad that my P-39 couldn't get up that high. On my second mission I forgot to switch fuel tanks after one hour. My belly tank ran dry, and I experienced the pilot's truism that nothing is noisier than an engine that suddenly dies—especially over the Owen Stanleys. I quickly switched tanks and caught up to my leader, who simply laughed at me through his canopy.

Two replacements were killed. The rest of us kept learning. On my first combat, I attacked a Japanese bomber over Port Moresby, fired at it (the first time I'd ever fired all the guns at once), saw a few hits and broke away in a climbing turn to try again. And at the top of my turn I heard a rattle like a gust of hail and was astonished by the sudden pocks and craters in my wings. I got back to base, landed (on two flat tires) and found the plane riddled with bullet holes. In breaking away, I'd made a crisply coordinated turn, banking exactly the right amount. Any good aerial gunner could track such a move, and Japanese gunnery was excellent. From then on, after an attack I'd skid or slip to make myself hard to hit.

That first fight was a rite of passage. The old pilots now offered true help, more than just enough for survival. And to my amazement, I realized that I had actually enjoyed the recklessness of that blazing moment. The action had stirred new juices in me. Even when my plane was hit, I felt no fear—only anger. I wanted to strike back, to clobber that Jap, and only a cooler second look at my damage restrained me.

So the gentle lad who hated violence grew tropical sores, fought off dysentery and malaria, choked down his bully, tapped crackers before eating (to get the weevils out), shared his whisky ration with the crew chief who kept his plane flying. He wore shorts hacked out of regulation khakis with a hunting knife, dealt solitaire on a canvas cot in the alert shack, and talked quietly, listening always for the field telephone to whir and the operations clerk to shout "Scramble! All flights!" He got tired and jittery, his insides sloshing with adrenaline, and he tried for a victory when he could, and learned from every casualty among his friends.

I was good enough to survive

It seemed no time before new replacements began to arrive, fat and pink-cheeked, wearing uniforms and saluting the C.O. as soon as they worked out which one of us skinny, half-naked figures he was. The rest of us looked at each other and whispered obscenities. We did our best to get the new guys squared away, and I cosseted the one on my wing—I was a flight leader by then—to make him look around so he might live awhile.

I never was a whiz-bang fighter jock, but I was good enough to survive the dicey little P-39. Then we were given big 2,000-horsepower P-47s, Republic Thunderbolts, or "Jugs" as we called them because of their shape. I was flying one that morning when I came down on a Japanese "Tony"—a very hot in-line-engine fighter—over the Bogadjim Road, near the north coast of New Guinea. I knew that I had him, and I was glad . . .

The dark little plane with the red circles got bigger in my sights, and I squeezed the trigger on the control stick. My eight guns blatted above the roar of the

engine; tracers flicked away—red streaks seeming to go into the target, but you can't tell about tracers. I swung a little to iron out any skid, and held the trigger down. Flashes sparkled on the Tony. It slid sideways, shoved by the impact of bullets. Something flew off it and whipped past me. Then it rolled inverted and plunged.

A parachute blossomed (the Tony had at least as much armor plate behind its cockpit as the P-47), and I jammed around to get my gunsight on the pilot. He'd be coming down over disputed territory and might fly again. That meant I was supposed to kill him in his chute. In our squadron, that was correct procedure. I figured I couldn't get around fast enough for a shot, so I muttered "Screw him," and flashed past him: a figure in a drab flying suit, about the same as mine. He'd lost his helmet and goggles. He had short-cropped black hair, and he hung on his straps and watched me whip past. I was close enough to see his black eyes follow me. He reminded me of someone I knew.

I landed and reported. The guys clapped me on the back and the C.O. gave me a hug. I'd done the right thing. I'd moved far away from the Veterans of Future Wars, the soaring ideals, the serene mountain, the tinkling birdsong, the loving hearth of home. In a way, I'd become a warrior.

Yet, even a half-century later, I'm troubled by something. It's about that Japanese in the parachute. I reported that I couldn't quite get my gunsight on him. The fact is, that was a lie. I was a pretty fair pilot by then and could have cranked my turn a little tighter. I could have ripped him to shreds as he hung there—as I was supposed to do.

I just didn't. That was in 1944—March 4, I think. I lost my logbook long ago.

"He had lost his helmet and goggles. He had short-cropped black hair, and he hung on his straps and watched me whip past. He reminded me of someone I knew."

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By Phil Patton

How a ridiculous idea mutated into a marketing star

Hatched less than a decade ago, the Teenage Mutant Ninja Turtles tramped the globe to create a multimedia empire of properties

"They came from nowhere," the barker says. "Shape changers. Radical reptiles. Introducing . . . an entirely new kind of Turtle, part man, part mutant."

It's the annual February toy fair in New York, and the barker is introducing the new line of Teenage Mutant Ninja Turtle toys. The little heroes on a half-shell are five years old, and for the toy and licensing business that's a milestone. Many lines die in 18 months, or two years at most. In toy years, five approaches ancient.

"These guys have total transformability," the barker goes on. "Kids can now re-create the amazing origins of the Teenage Mutant Ninja Turtles." The new line of action figures transform, as in the original Turtle story, from nature's turtles to the familiar Teenage Mutant Ninja Turtles. They will join 200 million such figures that have already been unleashed on the kitchen floors of the world.

The Turtles' far-flung network of images and licenses, characters and logos has in five years established itself as rival to the empires of Mickey Mouse and Snoopy, of G.I. Joe and Barbie. They represent the most successful "character introduction," as the marketing types call it, in history. And, more than a simple commercial success, they offer proof that we live in a society where a flight of whimsy can be magnified by the machinery of licensing, television and film into a $2 billion industry that embraces the planet. In short, the Turtles are the most striking illustration so far of the speed with which marketing can turn a bright idea into cash.

Seven-year-old David Wexler, of Santa Monica, fondly displays a few of the two-dozen Turtle items he owns.

Mutation is the theme of their story—and the theme of their sell. Unlike characters that become established as dolls or cartoon heroes, then expand to TV or film, the Turtles have spent only a brief time as comic-book characters. Their popularity came via the simultaneous effects of television and toy promotion. Michaelangelo, Raphael, Leonardo and Donatello began as small pet turtles. Mutated to their present size and shape by radioactive material, they now live in the sewers with their Ninja master, the rat Splinter. With pizza for their sustenance, they fight the evil Shredder and his cohorts using martial arts techniques.

A mix of popular culture in a giant multimedia blender, the Turtles mingle worlds and frames of reference—Valley talk, surfer culture, martial arts, superheroism and TV. They imitate Bogart; don basketball star Michael Jordan's number 23; and employ the surf-

The famous Turtles—Michaelangelo, Donatello, Raphael and Leonardo—landed in comic-book stores in 1984.

Photographs by Mark S. Wexler

Cartoonists Kevin Eastman (left) and Peter Laird created comics that ignited the Ninja Turtle craze.

er's cry of "Cowabunga!" borrowed in turn from old *Howdy Doody* shows.

Ninety percent of American boys between ages 3 and 8 own at least one Turtle figure. And though the Turtles have slipped from roughly 70 percent to just over half the action-figure market, they have remained number one for longer than any other line, ever. Last year Turtle figures and related products brought in a billion dollars in sales. That does not include the top-rated animated TV show. Or the two Turtle films (the first one took in $25 million on its first weekend). Or the video about the making of the films. It does not tote up the box office of the Turtle stage show—or the video about the making of the stage show.

Some 2,000 other products bearing Turtle imagery and logo are produced by some 600 licensees worldwide. There are Turtle toothbrushes, cookies, backpacks and air fresheners. The Turtles have had deals with Burger King and Pizza Hut, and have a top-selling Nintendo game. They have also sold three million records and tapes.

The relentless marketing can seem sinister, even subliminal. I noticed it with my own son. At irregular intervals, as if on command of some distant radio transmitter, he would freeze, assume a wide-angled stance and proclaim "Turtle . . . power!" Turtles became his totem; he had joined a tribe. Soon I began to feel as if I were living in the household of Louis XIV or Ralph Lauren or someone else who felt he had to have his official crest on everything. Like the king in his ritual dressing, he dons his Turtle duds. "Turtle undies!" "Turtle socks!" "Turtle suspenders!" Even King Solomon in all his glory was not logo-ized like him.

Equipped to fight or to rock'n'roll

Back at the toy fair, the barker is still going strong. "It's the Rock 'N' Roll Muta-Bus," he intones, "equipped with weapons for fighting the villains should the Turtles be attacked, but then should the guys want to get together for an afternoon jam session, you just pop open the shell and you've got a portable rock'n'roll stage ready"—here the barker shifts to a nasal surfer accent—"to tantalize your town with some tremendous Turtle tunes."

On the other side of the hall, a woman with the voice of a flight attendant, wearing a shiny satin jacket like those worn by members of the Turtles film crew, demonstrates a new Turtle airplane toy. At the push of a button, the Bubble Bomber emits bubbles filled with smoke. These emerge like eggs from its belly, drop and burst. Smoke hovers, then drifts slowly away. Across the room, the barker begins again. "They came from nowhere . . ."

In fact, it was not from nowhere, but close to there,

Mutations, the top-selling action toy in the Teenage Mutant Ninja Turtle line, was released this year. It replicates the transformation of the characters in the original story, changing from pet (above) to mutant.

that the Turtles came. They were born quietly in 1983, in the kitchen of a New England farmhouse. There, two impecunious cartoonists named Peter Laird and Kevin Eastman dreamed up the characters. At the time, Laird was earning $10 a sketch from the local paper, and Eastman was working in a restaurant. Together, the two longtime comic buffs had already created a character called Fugitoid, who would appear in slightly different form in the Turtle action-figure line.

Sitting around one night, a bit giddy after too much bad TV, Eastman and Laird took off with the Turtle idea. To name their new inventions, they pulled out Laird's copy of H. W. Janson's classic *History of Art*, left over from his college survey course. Leafing through its pages, they settled on the Italian Renaissance (although they spelled Michelangelo's name wrong). In May 1984 the first comic book—a black-and-white issue—introduced the Turtles. It was sold in specialty comic-book stores, which over the past few years have grown to roughly 5,000 across the country. The production of 3,000 copies cost the duo $1,200, raised by combining a tax refund and a loan from a relative.

And then, like a star in Schwab's drugstore, the Turtles were discovered. Their discoverer was a 32-year-old veteran of the trade named Mark Freedman, whose Surge Licensing is the center of Turtledom. Not long ago I found myself in Freedman's offices, inside a building shaped like a stereo component, banging away on a Turtle pinball machine—the very first Turtle pinball machine. The big steel balls bounced off Leonardo, Michaelangelo, Donatello and Raphael as lights flashed to springy *ding! ding!* metallic sound effects. Out of practice, I flipped my flippers desperately, keeping up the action until the ball finally slipped by. "Aw, bummer, dude," said the nasal, synthesized Turtle voice of the machine.

That pinball machine with its lights and noises is an apt metaphor for the marketing and licensing game Freedman plays. "Welcome to the Turtle Empire," he said as he extended a hand. Trim and energetic, he does up to 400 situps three times a week. Beside his desk, four Turtles sit in a glass box, and on the wall hangs a painting depicting characters prominent in the media recently: a member of Milli Vanilli, Bart Simpson, George Bush and, centermost, the Teenage Mutant Ninja Turtles.

Freedman, who once worked for the Hanna-Barbera animation studio, where he handled licensing for Scooby Doo and the Flintstones, and then for a company that licensed Alvin and the Chipmunks, was on his uppers when he found the Turtles. He had left to start his own company in the bedroom of his Long Island home when he heard about a role-playing game, made by Palladium, that had grown out of the original Turtles comic book. He decided to drive to an unmarked industrial building in Northampton, Massachusetts, to meet the creators. There, he found two wary but enthusiastic young men in jeans and T-shirts.

Phil Patton is the proud father of a Turtle-obsessed 3-year-old boy, and author of Made in U.S.A.: The Secret Histories of the Things That Made America.

They handed him the first Turtle comic and he read it aloud, with mounting excitement.

Freedman, who was used to "phantom calls" and long-shot properties, says this was different. "I'd never felt that way before. I thought, 'I gotta have this.' My heart was pounding. The first thing that popped into my mind was the Beatles. Four Beatles, four Turtles."

Recalls Laird, "We weren't sure about involving someone else—we were not businessmen, we were artists. We had to become businessmen." Freedman struck the pair as "somewhat daunting, with his three-piece power suit, briefcase, hair in place. We were cleaning up and painting a new office in our ripped shorts, splattered with paint." But by the end of the afternoon they had reached an agreement, sketched out on a napkin at Bart's Homemade Ice Cream. (Freedman now has that napkin in a safe somewhere.) The creators gave him one of only three Ninja Turtle figures then in existence (a 3½-foot foam-rubber replica). "Make us a million dollars or else," Eastman wrote on the cover of the first comic, in a speech balloon so it came from one of the Turtles, as he and Laird sent Freedman on his way.

Freedman hastily packed the Turtle in a box and shipped it overnight express to an old customer and friend, Richard Sallis of Playmates Toys, in California. The next morning Freedman phoned at 8:30 California time: "Did you get it?" Sallis opened the package while Freedman was still on the line: "It's great! What is it?" "It's a Teenage Mutant Ninja Turtle," answered Freedman. Sallis began to laugh.

Mark Freedman's Surge Licensing in Jericho, New York, handles contracts for 2,000 Turtle products.

"They have fun being superheroes"

In those days, the "action-figure category"—G.I. Joe and his progeny—was in eclipse. The reigning lines, such as He Man and Masters of the Universe, were deadly serious. The Turtles brought in humor. "They poke fun at themselves," Freedman says. "They have fun being superheroes. They talk to the camera. They don't respect the fourth wall, as they say in the theater."

The industry said that action figures were dead. It was back to basics: Disney and Lincoln Logs. No one knew what to make of the Turtles. "Everyone gave us a thousand reasons why it wouldn't work," Freedman goes on. "Like 'Green is an ugly color' or 'Who ever heard of turtles selling?' "

"We were underestimated," adds Sallis. "We were on the beachhead and well inland before anyone realized what was happening." Sallis is sitting in another office, in another building shaped like a stereo component—in La Mirada, a Los Angeles exurb. This is the U.S. office of Playmates, the Hong Kong-based firm that has been turned into one of the toy industry's giants by the Turtles' success. Sallis' telephone calls track the sun:

Workers in a manufacturing plant in mainland China assemble new "sewer-water-spitting" action figures.

from Europe as it rises, to New York when it is high, to Tokyo as it sets. A lean outfit, Playmates languished before the Turtles. Today, it is the most profitable toy firm in the world. Its stock, which is traded exclusively on the Hong Kong market, rose 700 percent in 1990, more than any other listing. Today the company has about $200 million in cash, and the industry seethes with rumors that Playmates might take over another company.

Turtle merchandise, marketed worldwide, includes lunchbox, hockey puck, toy razor, electric toothbrush.

Richard Sallis of Playmates Toys shows off warehouse. Turtles increased company profits by 700 percent.

Mattel Toys, Kenner Products and other toy giants generally have large in-house design staffs. With fewer than 50 employees in its California headquarters, half of those handling the warehouse, Playmates contracts out nearly all such work. One employee answers mail from Turtle buffs and people with ideas for new Turtle toys.

Sallis takes me through the warehouse. Boxes of Turtle toys are stacked high into great green walls and blockhouses, awaiting dispatch by the trucks backed up to the dock. "Krang's Android Body" reads the label on the nearest one.

During the tour, Sallis fills me in on a little history. With the early black-and-white comic books in hand, he says, he and his small staff altered the original Turtles, changing the focus from teens to kids. "We took the death out," he recalls. "Everybody lives to fight another day."

The earliest figures hit the stores in June 1988, and fans of the comic book started sales off. But these teenagers were soon succeeded by kids primed by advertising and the TV cartoon show, which had already begun airing in late December 1987. All of a sudden, the Turtles were a runaway hit in such chains as Wal-Mart and Toys R Us.

Ask Sallis about the $200 million or so in cash Playmates has socked away and he is forthcoming. But ask him about his designers—the agile and impish minds in which new Turtle concepts and characters mutate—and he grows reticent. Scattered throughout the Los Angeles area, they work independently and frequently without recognition, like screenwriters. Sallis is private about them because he doesn't want competitors trying to steal them away. And because, one gets the impression, they can sometimes be difficult to deal with. "They have a sense of their own worth," he says carefully. "I don't want to say arrogant, but headed toward arrogance."

Fine print seething with intrigue

To learn more about the creative types, you must read the fine print on the back of the packaging. It seethes with intrigue the way the credits of a film do. You must study the fine print, there beside the "Pizza Point proof of purchase seals" and the clip-and-collect cards on the back of each toy package. There, you read "Tokka inspired by drawing of Stephen R. Bissett" or "Dirtbag and Chrome Dome created by Michael Dooney."

The designers create drawings and prototypes of new characters and toys. To engineer the unfoldings and other manipulations, Playmates sometimes relies on a Japanese engineering firm. Then, to translate the prototype to a steel mold takes a skilled worker in Hong Kong or China several weeks of exacting work with machine tools.

The two halves of the mold are injected with plastic; cool water passes through a surrounding jacket; and 30 to 60 seconds later the pieces of a Turtle pop out to be assembled and painted by hand in a factory in busy, urban Macao or quiet, rural China.

Sallis explains the business: how to order the tools or molds that take three or four months to make, how to gauge the market, how to tell just how serious the

Rick Stratten works on Turtles built by Eric Allard's All Effects Company in Los Angeles for new movie.

retailers really are. The toy business is like fashion: orders are unpredictable; trends, fickle.

So Sallis has a problem. At the toy fair, the Turtle Bubble Bomber had been an immediate hit with buyers. But does the enthusiasm justify Sallis' ordering another mold—a "double tool" as they say in the business? Or will he be left with boxes of unsold Bubble Bombers, with no Turtle fans to buy them, no Turtles to fly them? "What do I do?" he asks. "What do I do?" He is at pains to show that this is not an easy business.

Playmates' success with the Turtles required many careful decisions of this sort. The first was to sharpen the differences among the Turtles, giving them color-coded belts (with initials on the buckles) and individual weapons. It also poured $2.5 million into the production of the first five TV shows, produced by Murakami, Wolf, Swenson. The cartoon softened the beachheads for the toys by explaining the story behind the Turtles and defining their characters: Leonardo, the leader; Michaelangelo, the party-loving jokester; Raphael, the angry one; and Donatello, the gadget guy.

At the toy fair in February 1988, Surge Licensing and Playmates introduced the Turtles. Also on hand were action figures from the film *Who Framed Roger Rabbit,* which were expected to be the hit of the year. "It was me against Spielberg—a classic tortoise-versus-hare scenario," says Freedman. *Roger Rabbit* the film was a huge success, but the Rabbit toys were overshadowed by the Turtles.

Roger Rabbit had a movie, yet the Turtles still won. How much better would the Turtles do if they, too, had a film? Freedman was warned against the idea: What if the film were a bust? Why rock the boat? But, he says, "I put my heart in it. I wanted to make it as big and great as I could make it." He went to Tom Gray of Golden Harvest Films, a Hong Kong-based studio best known for action-adventure and kung fu movies. Raymond Chow, the head of Golden Harvest, had discovered Bruce Lee and also signed Jackie Chan. No one else wanted the idea, but Golden Harvest understood: like a martial arts film, the Turtles were comparatively low-budget—$10 million in a time when $40 million budgets were becoming commonplace in Hollywood—and they provided lots of action and international marketing potential. (It was no simple task to lip sync the Turtles into four languages.) Golden Harvest is said to have paid all of $150,000 for the rights, a figure too small to show up in most Hollywood contracts.

The task of re-creating the Turtles for the screen was entrusted to Jim Henson's Creature Shop, founded by the late creator of the Muppets. There, disembodied Turtle heads sit and chat, eerily, on tabletops. Thanks to "animitronics," puppeteers use mechanical devices, which work in conjunction with computerized receivers in the shells of Turtle suits, to move mouths or rubbery faces while actors speak. One Turtle actor, corseted like the mature Elvis, sweats in a costume that he says feels "like being in Grand Central Station at rush hour with a tin can on your head."

Each on-screen Turtle is a composite of an actor inside the costume and an actor behind a computer. Master Splinter, with his Ho Chi Minh beard, requires three operators. The resulting film opened in March 1990. To Freedman, "the movie was the catalyst to take it from great to megaproperty. Now it's like an icon."

The Turtles undergo psychoanalysis

The achievement of that iconic status saw the Turtles become subjects for intensive analysis. The *New York Times* felt obligated to assign a psychoanalyst to explain the film and TV series to readers. "The film most strongly addresses the emotional issues of the teen-age years," wrote Harvey Greenberg. "The mutation theme is put in service of the search for a viable identity, and bridging the generation gap is stressed relentlessly." Greenberg ponders whether the Turtles fit psychoanalyst Bruno Bettelheim's explanation of the fairy tale with its ministrations to a child's "existential helplessness" by offering "homely reassurance," and discusses the "sloppy orality" of the pizza-eating reptiles.

Such analysis both amuses and mystifies cocreator Peter Laird. "We were not trying to be profound or make a major statement about the human condition; we were just trying to entertain ourselves." But, he will admit, "maybe there are other things we really don't understand ourselves."

For Marsha Kinder, who teaches at the University of

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PHILLIPS PETROLEUM COMPANY PHILLIPS 66

Between takes on the set of the third Turtle film, shot in Astoria, Oregon, actor in a Turtle costume and Samurai armor gets welcome blast of cool air.

Southern California's School of Cinema-Television, the Turtles are something different: a "commercial supersystem of transmedia intertextuality." That breath-taking phrase is the keystone of Kinder's book *Playing with Power In Movies, Television and Video Games: From Muppet Babies to Teenage Mutant Ninja Turtles.* Applying structuralist and deconstructivist thinking, she cites Levi-Strauss, Lacan, Althusser, Piaget and others on the multimedia revolution that the Turtles reflect. The last time so many big guns were imported from Europe was when Admiral De Grasse anchored his fleet off Yorktown.

Kinder argues that you can't understand the Turtles unless you look at the whole media system they grow out of. That system, like the sewers where the Turtles live, is a set of connections running beneath the daily world of children and parents. The meaning of the Turtle "supersystem," she writes, must be read in the "context" of the whole popular culture—of television and eventually all pop culture to which youngsters are exposed—from *Peanuts* to Popeye to Pizza Hut. The prematurely world-weary tone of the Turtle talk is that of the child who is already media savvy and marketing wise—the kid who knows the context.

Teachers and parents have been appalled at some Teenage Mutant Ninja Turtle products, such as Remco's Totally Awesome Dueling Dudes, the fighting-figure set in which the point is to punch the head of one combatant. After the Turtles' success, martial arts classes boomed. Many even aimed their advertising specifically toward younger boys taken with the Turtles.

The world of the Turtles, to critics, is too simple: good guys and bad guys, with violence and simple resolutions. "We fight only as a last resort," Master Splinter solemnly intones, but the last resort tends to come quickly in a half-hour cartoon show.

But for Peter Laird, some of this is a bit silly. Critics, he says, "have a tenuous grasp on what kids are really like. As kids grow they experiment: 'What happens if I kick like this?' But that doesn't make them violent. I get a kick out of horror movies but I don't stab people. They should take responsibility for their own kids and not blame the media." Then, too, what in Turtleland can compare to the gulping of grandmothers or the slashing open of wolves' stomachs retold daily in "Little Red Riding Hood"?

Will the Turtles last? Will they be succeeded by the new Crash Test Dummies or Zen Intergalactic Ninjas or Savage Mondo Blitzers? "That's the question," Laird says. "We don't know. It's already gone so far beyond anything we imagined. They've taken on a life of their own. They've gotten bigger than we are," he says almost wistfully, "but they're still our babies."

The Turtles have expanded beyond the audience of younger males to achieve popularity with teenage males and females. (One-third of the TV show's audience is female, and girls own 10 percent of the action figures.) So established have they become that now, at Walt Disney World in Florida, the Turtles perform and sign autographs, right up there with Mickey and Donald. The Turtles show up at the White House Christmas-tree lighting and the Cotton Bowl.

Laird points out that the longevity of Mickey Mouse or Snoopy is because of powerful organizations that keep the characters fresh. Mirage Studios and Surge Licensing are determined to keep ringing changes on the Turtle theme: to keep them mutating. For the fifth anniversary, Playmates introduced Movie Star Turtles,

action figures that more closely resemble the figures on the big screen, which were of course based on the original action figures. The process has come full circle, mutatis mutandis.

And when Sallis finally had to make his decision on producing the Bubble Bomber, his faith did not waver. "Triple-tooling time," he says with a sly grin.

Meanwhile, editors at *Toy & Hobby World* magazine say that only time can tell if the Turtles will move into what is called "evergreen" status. They have yet to acquire the patina lent by nostalgia, enjoyed by the likes of Hopalong Cassidy and Captain Midnight decoder rings. But they have changed the way that properties after them will be marketed. Whatever licensing sensations follow, they will move across the network of interconnections the Turtles have created.

Part of what continues to appeal about the Turtles is the whimsical, improvisational quality Kevin Eastman and Peter Laird lent them. Shredder, the archvillain, was invented after Laird placed a cheese grater on his wrist and playfully menaced his partner. "Wow," they both thought, "what about a character completely covered with this stuff?"

And despite all that has happened, Laird and Eastman continue to pour this sort of inspiration into the quartet, mostly through the original comic book. Right now, they are working on the 54th issue, getting "back to basics" after "some wild stylistic experiments" over the past couple of years. Laird seems nostalgic for the early days. "Life was a heck of a lot simpler back then. There was not as much time spent in rooms with lawyers."

Leonardo flashes a smile as movie camera rolls. Sixteenth-century Japanese armor was re-created to add authenticity to battle scenes in *Teenage Mutant Ninja Turtles III*, scheduled for release in March.

Every year, Miss Reusswig's third-graders learn how to write a proper letter. And they find it is a useful skill, what with their regular field trips into nearby Washington, D.C. (Not long ago, twenty-three thank-you notes arrived at the Ghanaian Embassy.)

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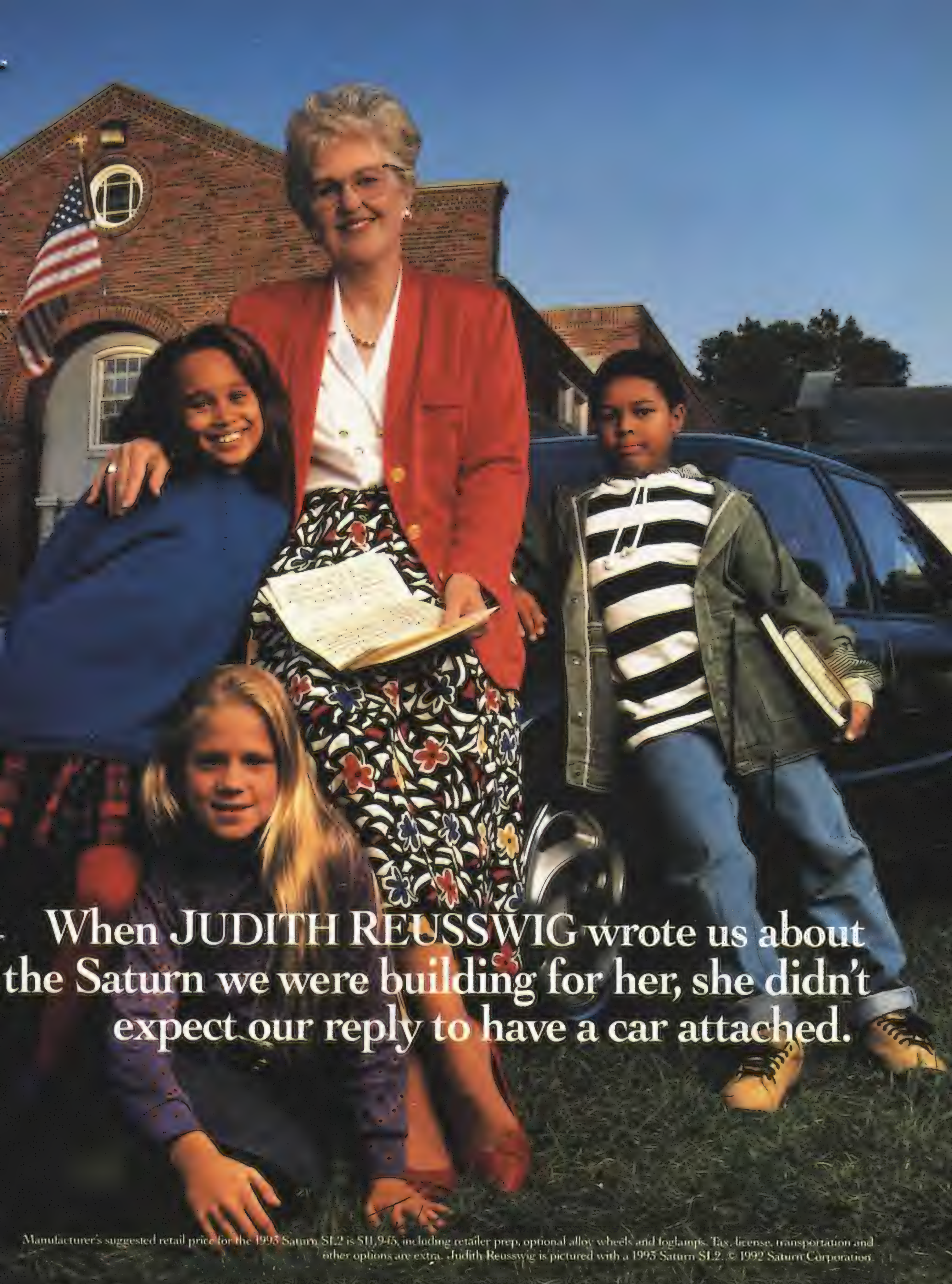

Manufacturer's suggested retail price for the 1993 Saturn SL2 is $11,945, including retailer prep, optional alloy wheels and foglamps. Tax, license, transportation and other options are extra. Judith Reusswig is pictured with a 1993 Saturn SL2. © 1992 Saturn Corporation.

By David M. Schwartz

Serving up science for everyday cooks and gourmets alike

With his lively and learned cookery tomes, researcher Harold McGee brings experimental flair and erudition to stovetop mysteries

It is three days before Thanksgiving, and Harold McGee is thinking about how he's going to cook his turkey. He has a few ideas and he's trying them out on a chicken. "A chicken is the perfect experimental subject," he says, pushing an errant dollop of stuffing back in place and sewing up the cavity. "It has two sides, so you can do a whole experiment, including a control, in one bird."

McGee, whose career defies conventional description, can best be described as "Mr. Wizard of the Kitchen." His modus operandi is to take a healthy measure of objective science, fold it into homely kitchen lore, then whisk vigorously. Following this recipe, he has demystified cooking phenomena, debunked kitchen myths, tracked down the origins of culinary lore and improved upon standard cooking techniques. He has served up the wisdom gleaned from his investigations in two books. *On Food and Cooking: The Science and Lore of the Kitchen*, which came out in 1984, is an authoritative rendering of the technical literature on food science in a highly digestible form. Published in 1990, *The Curious Cook: More Kitchen Science and Lore* is a more personal, lighthearted account of McGee's own adventures as a kitchen sleuth. Both are chockablock with morsels of culinary science and art relished by an international readership of cooks starved for reliable information. And right now, he's immersed in another massive project: an exploration of the biogeographical origins of our foods. (Why, for instance, did maize evolve in the tropics of Mexico?)

For today, however, he is trying to solve the age-old conundrum of the poultry cook: how to bring the dark meat to 170 degrees F, necessary to dissolve the tough connective tissue of legs and thighs, without overcooking the more delicate white meat, which starts to desiccate above 150 degrees. He has just stuffed the bird's body cavity and, inspired by a Portuguese recipe, he's about to put additional stuffing into an unusual place—beneath the skin that covers the breast. But he will do so only on the left side—the experimental side—in order to see if a thick insulating blanket of bread-crumb-and-celery stuffing can protect breast meat from some of the oven's heat. If two parts of the same bird can be brought to different temperatures in one oven—well, who knows?—it might just revolutionize Thanksgiving.

McGee finds the skin conveniently elastic, and with no trouble at all he has pressed several cups of stuffing between the breast and the skin, and raked it all to the left side, which now stands up three inches above the right. The chicken will be ready for the oven as soon as he takes care of one more detail: the bird must be wired.

In a plaid flannel shirt and blue jeans, McGee does not fit the classical image of either chef or scientist, but he seems comfortable in both roles. With surgical deftness, he pokes black wire probes into the breast, searching for the deepest meaty spot. "I'll have to get out the poultry x-ray machine," he jokes. Even though the kitchen of his three-bedroom house in a neighborhood of Palo Alto, California, doubles as his laboratory, its most remarkable feature is its very ordinariness: 1950s-vintage white-enamel gas stove against one wall, toaster oven and microwave on brown composition counters, typical household cooking utensils stacked behind slightly shabby cabinet doors. McGee doesn't want to advantage his work with a dream kitchen, but he does indulge himself with one piece of specialized equipment, a digital laboratory thermometer with probe attachments. "We'd all be better cooks if we had good thermometers," he muses, not oblivious to the entrepreneurial possibilities.

Come and get it: experimental chicken

The probes implanted, he bends the wires as they emerge from the breast and knots them around the wings, then plugs their insertion points with stuffing gaskets. One extremely lopsided chicken decorated with black wire loops resembling Mickey Mouse ears is ready to roast.

Hearing the oven door snap shut, 7-year-old John McGee abandons his sister to their Legos and wanders over from the living room. "Papa, what's for dinner?"

"Chicken," says his father. "An experimental chicken."

It's certainly not the first time the youngster has

A kitchen, to McGee, is just one big laboratory: even this dream version (a far cry from his modestly equipped space at home) is a venue for testing dictums like "searing meat seals in juices" (it's just not so).

Photographs by Rob Lewine

Avocado pits possess no magic anti-browning agent: oxygen-blocking light bulb keeps guacamole green, too.

eaten an experiment for dinner. McGee's family has accommodated dozens of kitchen-science projects, whether that meant eating them or just putting up with them. One day his wife, Sharon Long, a biology professor at Stanford University, came home to find the kitchen counters covered with bowls. Her husband was experimenting with mayonnaise emulsions. "The joke was that we would have to switch the kids from cereal to toast for breakfast," McGee says. "To see how long the emulsions would hold up, I was using every bowl in the kitchen, including the ones with Cookie Monster on the bottom and the alphabet around the rim!"

Although McGee earned his PhD in English literature, not chemistry, and declines even to call himself a serious cook, he has put to good use his natural bent for tinkering, a childlike penchant for playing with his food, and an inquisitive mind that incessantly asks How? Why? and Is that so?

Take guacamole. As the folk wisdom goes, submerging an avocado pit in the dip keeps the dip nice and green. When he was researching the browning of fruits and vegetables, McGee realized that an anti-browning agent from avocado pits could be both interesting and useful. If it existed. Which he doubted.

So he mashed up some avocados, divided the mixture into two bowls and dropped an avocado pit into one of them. After 90 minutes, the guacamole turned an unappetizing shade in both bowls. But on removing the slippery pit, he noticed that it had left a bright-green depression in the dip. Was the putative anti-browning agent emanating downward from the pit? Or did the pit's mere physical presence block oxygen? He repeated the procedure, but this time he immersed an inert object about the same size and shape as an avocado pit: a 40-watt high-intensity light bulb. The result was identical. And so another old wives' tale bites the dust.

"We often think of science as quarks and black holes and the primordial soup, and we don't realize that everyday home life is just as informed by science as these grander subjects," says the kitchen scientist who once aspired to a career in astronomy. (Even now McGee keeps a telescope that he bought in high school on a homemade tripod in his study.) "People sit around the dinner table discussing the Big Bang, but they probably can't explain how flour thickens soup. Personally, I am most intrigued by the science of everyday life."

Almost every day, for example, as a "bespectacled frequent fryer" he faced the practical question of why grease from the pan ended up on the *inside*, not the *outside*, of his eyeglasses, and what could be done to prevent it. His father-in-law, a woodworker, pointed out that sawdust, which is often electrically charged, also coats eyeglasses on the inside. Recalling Robert Millikan's classic oil-drop experiment to measure the charge of an electron, McGee wondered if electrically charged oil from his frying pan was somehow being repelled from the front of his glasses or attracted by the back. Maybe the electrostatic charge of his face had something to do with it. One clue came when he propped several pairs of old eyeglasses atop some cereal boxes and positioned them around the stove; a pattern emerged. The only thing that mattered was the angle of the lenses: the upward-pointing surfaces collected the grease. Aha! The frying pan spits out oil droplets, which rise high into the air and then rain down onto the interior surfaces of the lenses of a bespectacled cook bending over the stove. Solution? "The best kitchen headgear is not a chef's toque. It's a baseball cap." The Chicago native goes one step further: "A Cubs cap works best."

While there is no one else quite like Harold McGee on the scene today, he does point to a historical predecessor, Benjamin Thompson, Count Rumford. Scientist, statesman, soldier and traitor—born in the American Colonies, he served King George III in the Revolution—Rumford discovered convection in liquids, improved the drip coffeepot and redesigned fireplaces and kitchen stoves. He wrote of his desire "to inspire cooks with a just idea of the importance of their art," and he was all for pressing science into the service of that art. To this end he introduced the long, slow method of roasting meats at low temperatures; he also expressed doubts that stewing at 212 degrees F could suit all types of food, even though the custom in Rumford's time was to cook nearly everything at full boil. If we've turned down the flame a bit in the two centuries

A frequent contributor to these pages, New Haven, Connecticut, writer David Schwartz likes to play with his words and eat his food, but not vice versa.

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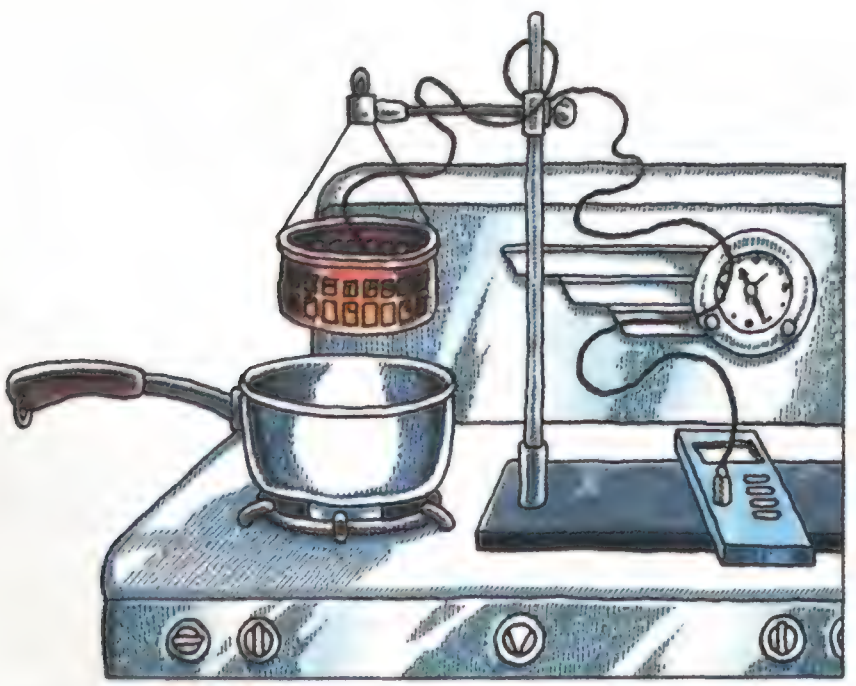
since the founder of kitchen science railed against overcooking, Hal McGee is quick to remind us (as did Rumford) that a vigorously boiling pot and a gently simmering one are both at 212 degrees.

"Even these days, cooking is driven by tradition," says the 41-year-old McGee in his professorial voice. "At cooking schools students get a crash course in food chemistry, and then they spend six months learning sauces from someone trained in Europe who tells them, 'Do it this way because this is the way I learned it, and it goes back to Escoffier.' Too many methods are based on pedigree, not rationality."

As his distinctly unpedigreed chicken roasts, McGee takes periodic readings off the two wires that emanate from the oven and jots his data on the back of a "while-you-were-out" telephone memo pad. His thermometer sits on a stool which, with the aid of a dish towel, also serves to prop shut the oven door. After an hour in the oven, the bird's uninsulated side registers 146 degrees, while its protected half is at 118 degrees. "Wow! I'd say we have a difference. This is encouraging. It needs about 20 minutes more. We'll be eating at 7."

Compared with schoolmates in the Chicago suburb where he grew up, McGee has been an adventurous eater since childhood. His mother, who was born and raised in India, and his father, who spent several years in Southern California, brought to the family table Indian and Mexican dishes that their neighbors had never seen, along with more typical Midwestern fare. McGee's mother remembers him as generally quiet and ungregarious, far more enthusiastic about ham radios, telescopes and school science projects (one of which won him an honorable mention in the Westinghouse Science Talent Search) than about her meals. "I wasn't that interested in food," McGee explains. "I just ate. It wasn't until I started looking at food from a scientific point of view that I became fascinated by it. I gradually realized that cooking *is* biochemistry."



McGee improvises experimental apparatus from motley equipment: ring stands, berry baskets, thermometers.

The turning point took place at a dinner party in 1977. Although he had started his college career studying physical sciences at Caltech, he switched to literature after two years, and was at Yale, writing his doctoral dissertation while Sharon worked on hers in biology. When a dinner companion learned that Sharon's research involved bean plants, he asked her to please explain (McGee paraphrases the question delicately) "the bean's well-known effect on the human digestive system." The fellow was a New Orleans native whose love of red beans and rice had given him firsthand experience, and considerable interest, in the matter. Were some bean varieties kinder than others?

At one library, a vocation discovered

The next day the literature student was in the library researching beans. He found that their gas-producing qualities result from sugars called oligosaccharides that are difficult to digest; indeed, he uncovered laboratory tests that rated beans for their gastric benevolence. Such seemingly simple how-and-why questions soon carried McGee far afield, into a wide range of disciplines. He had found his calling as a food researcher.

McGee began to think about writing a comprehensive book that presented food and cooking in biochemical and physical, as well as cultural and historical, contexts. He imagined something of 150 to 200 pages that would take a year or so to complete. He signed a contract with Charles Scribner's Sons.

A meaty 684 pages, *On Food and Cooking* took him five years to research and write. Casting it as a reference book, his editors planned a minuscule print run of 2,500. But shortly before the book went to press, McGee decided to undertake one more food experiment. He wanted to see if there was any truth in the culinary dogma that held that egg whites beat up stiffest in a copper bowl. It was the best thing that could have happened to *OFC*.

"The copper bowl claim struck me as unlikely from the start," he says. "I figured it was either an old wives' tale or a promotional ploy by the copper industry." But his curiosity was piqued when he came across an engraving of a copper bowl, in use with other baking utensils, in Diderot's *Encyclopédie*, published in France in 1771. Such circumstantial evidence was hard to ignore. And so, at the shop of a nearby purveyor of cookware, the skeptical writer gulped—and forked over $70 for a copper bowl. Back home, he separated a few eggs, got out the whisk and limbered up his wrist.

"I would have cried 'Eureka!' if I hadn't been so in-

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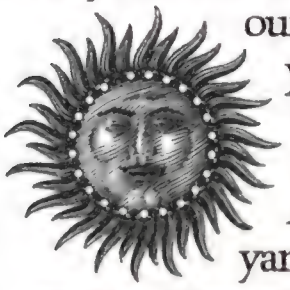

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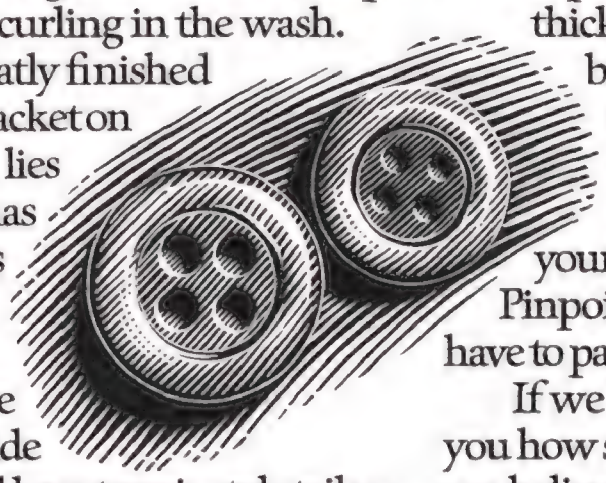

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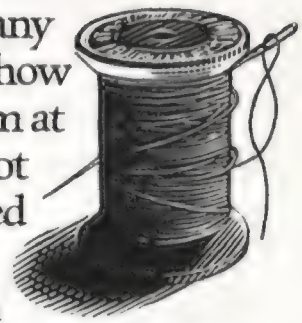

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Spattering grease falls on inside of glasses as cook bends over the stove. A baseball cap is recommended.

vested in the idea that it was all a hoax," he says. There was no doubt about it. "Compared with whites beaten in a glass bowl, the foam took almost twice as long to form. But it developed a lovely golden hue, became stiffer and moister, and stayed that way much longer."

Always one to wonder why, McGee didn't stop there. Collaborating with his wife and her colleague Winslow Briggs, an avid gastronome himself, the three performed a sophisticated spectral analysis in a nearby lab and found that an egg-white protein called conalbumin had indeed taken up copper from the bowl. As the protein's three-dimensional molecules begin to unfold during beating, copper ions add strength to the protein's delicate structure. Most important, protein bonds reinforced by metal are more stable, hence more forgiving to the home cook who can carelessly overbeat egg whites to the point of irreversible collapse.

They published their study of "chicken albumen foams" beaten in "copper reaction vessels" in the prestigious British journal *Nature*. The bibliography cited such authors as Plato, Diderot, Auguste Escoffier, James Boswell and Julia Child, alongside biochemistry texts and articles from the *Journal of Biological Chemistry* and *Poultry Science*.

News of the egg-copper connection sizzled on the wire services. Even McGee was a bit surprised to see it reported in newspapers from Boston to Bangkok. At Scribner's, the editors of *On Food and Cooking* tripled the first print order and marketed it as a trade, rather than a reference, book. Despite a $30 price tag, the first printing quickly sold out. Readers and reviewers found an offbeat charm in its interdisciplinary bouillabaisse of chemistry, physics, zoology, botany, history, geography, anthropology and literature, which ranged across time and space from 13th-century Italian poetry about pasta to electron micrographs of yogurt. And what omnivorous browser could resist an encyclopedic text that explained, in stylish and accessible prose, how popcorn pops, why cutting onions makes us cry, how to help a banana ripen, who invented breakfast cereals, and which came first—the chicken or the egg? (To crack that one, McGee suggests rephrasing the question as "Which came first, chickens or eggs?")

Though amateurs enjoyed *OFC*, culinary professionals found it a godsend. "I called him up as soon as I saw it," exclaims Shirley Corriher, a biochemist-turned-cooking-instructor from Atlanta. "And I said, 'Dr. McGee, where have you been during all these years I've been teaching this food science course?' " Since the book was issued, she has worn out ("I mean, completely *destroyed*") three hardcover copies and given away hundreds.

OFC's appeal to professionals was that it liberated them from bondage to recipes and formulas. "In cooking, if you can understand *why* something behaves the way it does, then you can make it do exactly what you want it to do," explains Anne Willan, a prolific cookbook author and founder of La Varenne, a culinary school in France. "And this is the definitive work on food science. Whenever you want to know *why*, you simply look it up in Harold McGee. The proof of his authority is that one never refers to the name of the book; one merely says, 'Look it up in Harold McGee!' Very few authors get that kind of respect."

Expecting, as always, the unexpected

Eighty minutes after it went in, the chicken comes out of the oven. The padded side registers 151 degrees—just about perfect—while the bare breast elevates the thermometer to 166 degrees. Not only is the cook elated with the result, but as he points out, the skin on the puffed-up side glows with a lovely mahogany tint. Smiling, he sets the table for dinner. He is totally unprepared for what happens next.

As the chicken sits on the counter, its temperature continues to rise. The unprotected breast goes up just a few more degrees, then starts to cool. But its counterpart, shielded from the lower room temperature by its thermal breastplate, keeps right on cooking: 160 degrees . . . 165 . . . 170 . . . 175 . . . It doesn't head downhill until it hits 176, well above the other side's peak! "I wasn't sufficiently foresightful to remember that anything well insulated from heat is also well insu-

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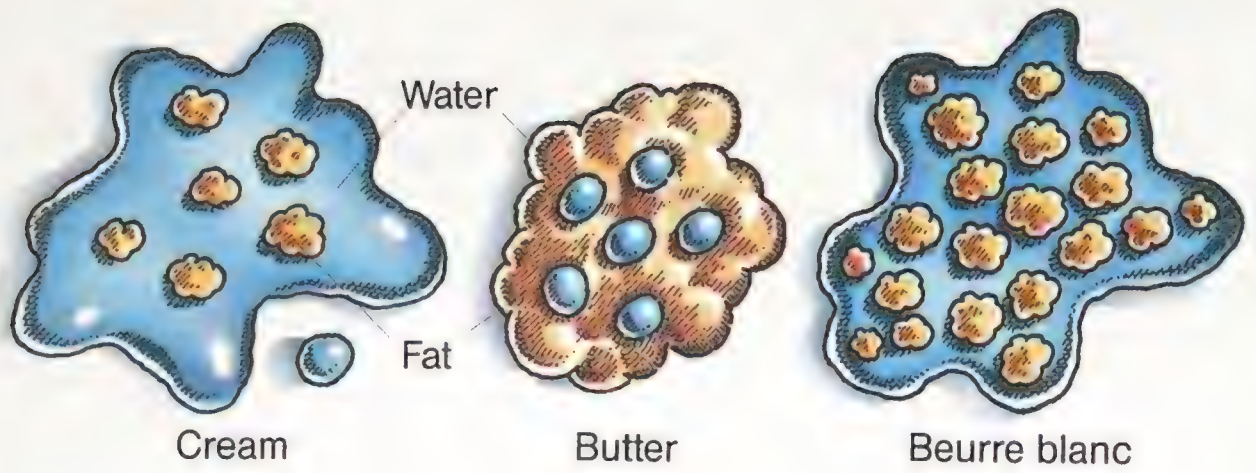

Chemistry underlying foods fascinates McGee: cream contains fat globules in water; butter has water drops in fat; beurre blanc exhibits creamlike structure—but more dense—of fat in water.

lated from cold," McGee says glumly as the disaster evolves. "But it does settle a question long debated by cooks: 'Does a roast continue to cook once it's outside the oven?' "

After a quick calculation, he decides that tomorrow he'll take the bird out 15 minutes earlier, although he doesn't yet know if that will give the dark meat time enough. Maybe he'll play around with the insulation. "A dry stuffing won't have the structural integrity of a vegetable stuffing, but it may give a better R value."

The double-stuffed, high-R (as they say in the home insulation business) poultry technique, if perfected, would add an extra step to the preparation of a roast bird, but many of McGee's efforts to understand food have had the opposite effect, revealing that some traditional cooking methods are great time-wasters.

"I am at bottom a lazy cook," he says without shame. "If there's a simpler way of doing something, I want to find it. When I look at a recipe, I don't only ask why do it, but also, can you get away without doing it? When you're making a sauce, do you have to measure all the ingredients carefully and add them sequentially, as the cookbooks say, or can you just throw them together and get what you're looking for? Some books even say you must stir your sauce clockwise. There's obvious mythology and there's not-so-obvious mythology."

In fact, when he began to think of sauces not as the product of a mysterious alchemy but as emulsions of fat droplets in water, McGee made a series of discoveries that have earned him the untold gratitude of restaurateurs everywhere. The first epiphany was his realization that the process of turning butter into beurre blanc, a staple of haute cuisine, reverses the very process by which cream was churned into butter in the first place. Beurre blanc is simply a richer version of cream, in which many fat droplets are suspended in a relatively small amount of water. Pondering recipes published by some of the world's best-known chefs, McGee could not understand why the prescribed ratios of butter to water ranged all over the map. "And most of the authors warn that *their* values are critical. Ignore them and your sauce will fail. If you believe one chef, then all the others have to be wrong." It didn't make sense. As he writes in *The Curious Cook*, "There was something fishy here, and it wasn't just Loire pike."

He set his mind to a rolling boil and had another revelation. "Of course! Butter is not just fat. It contains about 18 percent water, as well as milk solids that help stabilize fat globules. Butter is a sauce waiting to be made." The reason that recipes for beurre blanc vary so much, he concluded, is that the initial amount of water is irrelevant; however much you start out with, butter adds enough water of its own to keep the sauce happy. The different recipes just give subtle variations in texture and taste.

On a roll, McGee started stirring up trouble with the traditional recipes for hollandaise and béarnaise sauces, and those too he found overly rigid and complex. "In a physical system there's usually more than one way to get to a desired end point." He found the simplest one possible in a newspaper clipping: throw all the ingredients into a cold pan and stir.

It's no wonder that Christopher Kump, executive chef of Cafe Beaujolais in Mendocino, California, calls himself a "huge fan" and assigns chapters of McGee's books to his staff. "I apprenticed in France, where the chef says, 'Just do it this way,' and yells at you if you ask him why," says Kump. "The great thing about McGee is that he's always saying, 'Why *do* they do it this way? Is there any sense behind it?' " While dining in restaurants, McGee has on occasion been greeted by a queue of appreciative cooks trooping out of the kitchen for him to sign grease-stained copies of his books.

Although he arrived at food through science, McGee hopes that his experiences—and his own lack of credentials—will encourage others to reverse that process. He realizes that a frantic host expecting a dinner party of 12 to arrive in two hours wants to do as little experimentation as possible, but under less pressured circumstances he believes a little rangetop chemistry can be great fun. "You don't have to be a professional cook or a professional chemist to do some experimentation in the kitchen," he says. "Parents with little children often find themselves saying, 'Stop playing with your food,' but what I like to say to adults is 'Play with your food more!' "

The message may be getting out. Although McGee frequently gives guest lectures at cooking schools, he was recently invited to speak in the President's Distinguished Lecture Series at Carnegie Mellon University in Pittsburgh. His talk, "Playing With Food: Three Centuries of Science in the Kitchen," packed the hall with a standing-room-only crowd.

It's unlikely Harold McGee will ever have the name recognition of Julia Child or Frugal Gourmet Jeff Smith, but he may reach just as many of the cooking public by trickling down. "People who write about food also read about food," says Susan Friedland, senior editor at HarperCollins, "and many of them read McGee. He has had a very strong impact on thoughtful food writers. It just *has* to filter down to the cook on the street who has never even heard of Harold McGee."

I spoke with him after Thanksgiving to get the report on Holiday Turkey à la McGee. He had applied the one-sided insulation technique to the larger bird, and this time, upon removing it from the oven, he immediately cut away the insulation so the breast meat could cool. Results were equivocal, and removal of the skin had ruined the presentation. But he'd hit upon a new idea—cooking the bird breast-side up for about an hour so the skin could brown, then flipping it into a deep-sided roasting pan that would protect it from heat conduction. And he would experiment with oven temperatures and cooking rates. "This is a work-in-progress. I'll be playing with it."

Of that I have no doubt.

Thermometer indicates a near-perfect "experimental" roast chicken. McGee found that when the bird's breast interior registered 140 degrees F, both the white and dark meats were cooked, yet tender and succulent.

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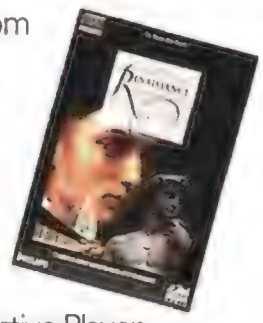

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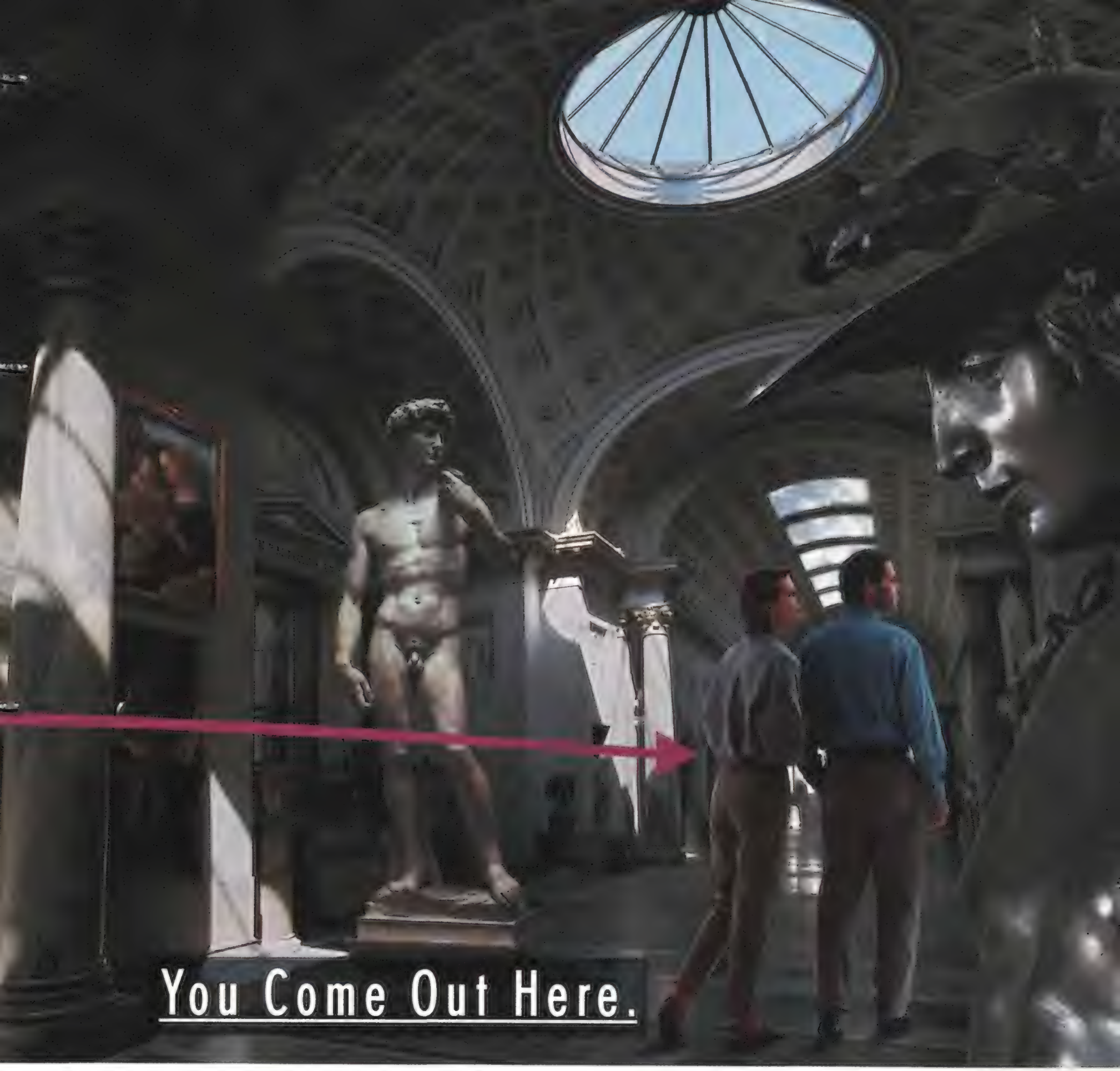

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San Francesco, Arezzo

By Marilyn Aronberg Lavin

Piero the painter blended geometry with religious art

A half-millennium after his death, Piero della Francesca's works continue to thrill and fascinate both tourists and scholars

In a detail of a *Legend of the True Cross* fresco, the Queen of Sheba kneels to worship the sacred wood.

Whenever he moved to a new home, American artist Philip Guston would pin two postcards onto his kitchen wall. Both were reproductions of panel paintings by Piero della Francesca—*The Baptism of Christ* and *The Flagellation of Christ.* "He is so remote from other masters . . . ," Guston wrote in *Art News* in 1965. "A different fervor, grave and delicate, moves in the daylight of his pictures. Without our familiar passions, he is like a visitor to the earth. . . ."

Guston was not alone in his admiration for Piero della Francesca, who by odd coincidence died on the same day, a half-millennium ago, that Columbus set foot in the New World. People more often name Piero as their favorite than any other artist of the 15th century. Former college students with no more than a survey course in the history of art smile with pleasure at the very mention of his name. Travelers to Italy, from academic heavyweights to ordinary tourists, describe their "Piero pilgrimage" with pride, taking pains to track down the few remaining works in Tuscany, Umbria and the Marches. Trained by the Bauhaus, challenged by the Postimpressionists and Cubists, bombarded by the Abstract Expressionists, jolted by Postmodernism and deconstruction, our "modernist" eyes readily absorb Piero's soothing sense of seriousness. We see his plain and haughty figures as somehow better than normal; his open spaces and colors, washed in light, as perfect as can be. His clear and readable subjects are typical of human experience, yet deeply moving and strangely portentous. His paintings are like acts of charity, and more: they contribute to the general good, yet they are really enjoyable.

Not one remark of a personal nature

One reason Piero remains intriguing to us is that so little is known about his life. In the hundreds of pages of his own writings there is not one remark of a personal nature. We know that he was born in the town of Sansepolcro (about 70 miles southeast of Florence) and that his father was an apothecary, but there is no record of his birth. Since he was supposed to have been nearly 80 when he died in 1492, he was probably born around 1415. He had two brothers who, along with his father, often acted as his agents.

By the mid-1430s, Piero had studied painting with a provincial master, Antonio d'Anghiari, and was absorbing all he could from the great artistic traditions in Assisi, Siena and Florence. In 1439, in Florence, he worked with Domenico Veneziano, who was exploring perspective construction, solidity of form and sparkling coloristic effects. But unlike many of his contemporaries—Veneziano, Fra Angelico, Paolo Uccello, Andrea Castagno—Piero did not remain in Florence. Although he traveled to Rimini, Arezzo, Urbino and elsewhere to fulfill commissions, he always returned to Sansepolcro. Throughout his life, he held various public offices and was a leader in the Confraternity of San Bartolomeo, the most important lay religious organization in his hometown.

Piero's patrons were never the Medici or other wealthy Florentine merchants. Instead, they were monasteries, confraternities and citizens of his home territory, in addition to a few of the courtly lords in the nearby provinces. When he painted the cycle *The Legend of the True Cross*—ten monumental frescoes on the walls of the church of San Francesco in Arezzo—a

Light-washed colors as perfect as can be

well-to-do family of bankers was the sponsor, but the Franciscan friars who ran the church had the final say.

After a long and sedentary life, Piero made his will in 1487 and, since he had never married, he left most of his property to his brothers and their heirs. He gave instructions for his own burial, which was to be in the family tomb in the tower of Sansepolcro's Camaldolite Abbey Church (later the cathedral). Five years later, he died.

It may come as something of a surprise that in the centuries after his death, Piero was remembered less as a painter than as a mathematician. In his time, painting was still considered a craft because it was done with the hands. Piero, however, had studied Latin, the classics and, in particular, the work of Euclid. From the 16th to the early 19th century, his fame rested almost exclusively on his authorship of three theoretical treatises: the *Trattato del abaco*, on arithmetic; the *Libellus de quinque corporibus regularibus*, on solid geometry; and the *De prospectiva pingendi*, on the theory of perspective for use in painting. When these texts were finally published in modern times, historians of science confirmed their importance. Piero is now ranked among the greatest mathematicians of his day, on a par with Toscanelli, who may have made Columbus' journey possible. His treatise on perspective, after being passed to his colleague Fra Luca Pacioli, and then on to Leonardo da Vinci and Albrecht Dürer, guided the representation of three dimensions on a two-dimensional surface right up to the time of Impressionism.

It wasn't, however, until late in the 19th century that Piero came to be seen as a major artist of the Italian Renaissance. He was identified, in fact, with modern art, particularly with Cézanne, who seemed visually to be his soul mate. Piero's style, it was said, had forecast the values of Postimpressionist art. And indeed, many stylistic elements seem to bring these two artists together: suppression of emotion, emphasis on geometric shapes, and an overriding concern for the flatness of the picture plane.

Yet, by a strange twist of irony, Piero's rise to prominence began not with the avant-garde but from within the heart of the academy. In Europe in the 19th century, the Impressionists' break with tradition, based on their apparent rejection of strict formal structure in pictorial space, seemed a serious threat to the dominance of academic art. And it was precisely fear of losing power that then led, quite directly, to the rediscovery of Piero as an artist and the bringing of him to world attention.

Here is how it happened: the academy in Paris—the Ecole des Beaux-Arts—was struggling against the in-

Marilyn Aronberg Lavin, a scholar of Renaissance culture, is the author of Piero della Francesca, *which has just been published by Harry N. Abrams.*

San Francesco, Arezzo

Metropolitan Museum of Art

In his painting *Gardanne*, c. 1886 (above), Cézanne gave the town the same rising arrangement of geometric solids that make up Piero's view of Arezzo (left).

Piero's depiction of Arezzo is in background of *The Finding of the Cross* fresco, a copy of which was made by Charles Loyeux and installed in Paris in 1874.

fluence of upstarts like Courbet and Manet, who were dispensing with academic conventions in order to go out into nature and paint what they saw. One method of combating what was considered laxity in the structure of painting was introduced in 1872 by Charles Blanc, the newly elected director of the Ecole. It was time, he said, for young artists to be trained more strictly than they had been in recent decades. To ensure a return to traditional values, he reintroduced copying as a method of teaching—not just from casts after classical and Renaissance sculpture but also from copies of famous historical paintings.

And so, in his fight against the avant-garde, Blanc commissioned 157 replicas of Italian Old Masters; they were to be used as study tools and as part of a planned Musée des Copies. They included easel paintings by Botticelli, Raphael and Titian; a reduced replica of the whole of Michelangelo's *Last Judgment*; and, surprisingly, full-scale copies of two tiers of Piero's fresco cycle in Arezzo, one displaying *The Finding of the Cross* and *The Proving of the Cross*, and the other *The Battle of Heraclius*, all done by a little-known painter named Charles Loyeux.

Blanc, however, ran into trouble at home: the idea of a copy museum met with disapproval from members of the committee of the Ecole, and he was dismissed from his post in a storm of controversy. By December 1873, when a new director was in place, the part of the copy museum already formed was dismantled. When Loyeux's Piero copies arrived in Paris the following year, they displeased the committee greatly. The paintings were not destroyed only because the enterprise had been quite expensive (and Loyeux had become a public hero in Arezzo). Instead, they were installed, along with a number of the other replicas, high on the walls of the school chapel, where they can still be seen—with some difficulty—behind the plaster casts and above various temporary exhibition installations.

Despite these internal controversies, both Blanc and the school librarian, Eugène Müntz, went on to write eloquently about the early Italian School, and Piero in particular. Müntz had photographs and drawings of other Piero works brought from Italy to serve as further models. While these copies may have fulfilled their intended purpose well, they also had an unintended impact. To the eyes of a number of the younger generation, particularly Cézanne and Seurat, they started a new revolution of their own, rather than quelling the dangers of anti-academic art.

Providing a bridge to modern art

Although Cézanne lived in Aix-en-Provence, he participated in the first Impressionist exhibition in Paris in 1874 and was in and out of the city all that year and the following. It is possible, therefore, that he saw Loyeux's copies soon after they went on view. They clearly made a strong impression because, a few years later, Cézanne repeated a motif from one of the frescoes almost exactly. In his *View of Gardanne* (p. 125), he gave the townscape the same rising composition of geometric solids that make up Piero's view of Arezzo in the background of *The Finding of the Cross.* The particular bridge to modern art found here is unusually strong, since this very composition by Cézanne inspired the first true Cubist landscapes of Braque, Picasso and Derain in 1908-09.

Another link in the chain from Piero through the academy to modernism was forged by the young Seurat. As a student at the Ecole des Beaux-Arts (he entered in 1878), he had access to both the Piero replicas and the photographs collected by Müntz. Clearly, he studied them quite closely, and many of Piero's motifs reappear in some of Seurat's most familiar paintings. For example, the seated boy on the left of *Bathing Place, Asnières* recalls the guard seated at the far left in Piero's *Resurrection of Christ* (p. 131), and the compositional structure of *La Parade* is close to that of *The Proving of the Cross.* Thus, far from being the result of rebelliousness, many progressive steps toward the founding of an abstract art were stimulated by examples that were offered within the walls of the academy.

After initial evaluations as a mediocre talent (art historian Jacob Burckhardt had called his work "naive"), by the beginning of the 20th century Piero was firmly identified with the formalist trends then in vogue, and his artistic status among critics began its rise. Aldous Huxley called his paintings "strange and startlingly successful . . . experiments in composition." Roberto Longhi, who wrote the first monograph on the artist in 1927, eulogized his spatial intervals, poetic tonal organization, lack of emotion and the archaic quality of

In collaboration with B.A.R. Carter, a professor of perspective, the author analyzed *The Baptism* to show the indivisibility of Piero's science and art. They discovered that the painting was organized according to geometrical principles replete with symbolic significance. The placement of major elements of the painting—including the hovering dove and Christ's hands and right foot—suggest that it was designed on the basis of Euclid's Proposition 16, a formula for constructing a 15-sided figure by superimposing a pentagon on an equilateral triangle. The triangle may well stand for the Trinity, the pentagon for Christ's five wounds. Each of the 15 chords (the straight lines connecting segments of the circle's arc) spans 24 degrees. The actual length of a chord and its various multiples determine the proportions of the painting's elements. For example, Christ's height is three times the length of one chord. Moreover, the number "24" has a special meaning—it represents the number of degrees by which the sun lies north of the Equator on the summer solstice and south of the Equator on the winter solstice. According to the medieval church, Christ's baptism took place on what was then thought to be the winter solstice—and therefore the beginning of the New Year and the moment of the Descent of Holy Light. Piero thus found a mathematical way to identify Christ with the sun, and hence with Divine Illumination.

Courtesy of the Trustees of the National Gallery, London

Galleria Nazionale della Marche, Urbino

Painted on a small wooden panel less than two feet high by three feet wide, *The Flagellation of Christ* (1458-60) is considered one of Piero della Francesca's masterpieces. Within its deep space, there are two different sources of natural light—an impossibility in the real world. Light falls on the foreground figures from the left, but hits the flagellation scene from the right, setting it outside of time and place.

his classicism. Edging ever closer to the language of modernism, in 1929 the painter-critic André Lhote called Piero the "first Cubist," and his fate was sealed. He became the contemporary painter's historical alter ego, validating the notion of art for art's sake, and offering secular viewers "church painting" unencumbered by religious sentiment. In the 1920s and '30s this point of view was espoused mainly by cultured writers and connoisseurs like Huxley, Roger Fry and Adrian Stokes.

After World War II, and particularly after 1951 when Kenneth Clark published the first major English language monograph on Piero, praise for the artist was widely disseminated in classrooms. Even greater familiarity with his works came after an important restoration campaign of the Arezzo frescoes was carried out in the early '60s, and new color prints became available. In the next decade, the predisposition to see Piero's style in abstract terms caught the interest of New Wave literary theoreticians, who found his visual symmetry irresistible. His works then became the focus of repeated analyses by the structuralists, and still today they are the subject of examination.

The aspect of Piero's art missed in such a theoretical approach is the relationship in his paintings between abstract form and religious content. An increasing number of recent studies show that the surfaces of most of his paintings are coordinated by geometrical schemes closely reflecting his own mathematical theories and confirming a level of abstract value. Yet at the time Piero was alive, there was no such thing as "abstract art." In fact, there was no art at all that wasn't commissioned by a paying patron. And in Italy of the 15th century, those commissions, both private and institutional, were for religious subjects, serving specific religious functions. A look at two of Piero's best-known paintings, *The Baptism of Christ* and *The Flagellation of Christ* (above), helps explain how he used geometry to magnify religious themes.

At first glance, *The Baptism of Christ* (p. 127) appears to be an unassuming landscape. Prolonged ob-

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servation, however, reveals a haunting sense of portent that, in large measure, stems from an intricate geometric framework. Further analysis suggests that most of the painting's measurements are based on one of Euclid's propositions (see diagram, p. 126). Within this mathematical framework Piero used geometry to identify Christ with the sun and place Him in the center of the Universe; that is, he used mathematics to reinforce the concept of Christ as Divine Light.

In *The Flagellation of Christ*, perhaps Piero's most admired painting, the three figures in the foreground stand outdoors, while Christ and his tormentors, at the left, are inside a portico deep in space. Outside, the system of one-point perspective continues to an exceptional depth: the vanishing point can be calculated to be some 250 feet away.

Within this setting, Piero has used intersecting geometric planes to create two different sources of natural light—an impossibility in the real world. Light outside the buildings falls from the upper left, casting short shadows on the right side of the foreground figures. Inside the portico, the reverse is true: light comes from the right, creating strong highlights on the right side of all the figures and mysteriously illuminating the coffered square above Christ's head. By including these visual anomalies, Piero has set the scene of *The Flagellation* outside of time and place: the inner space becomes a divine sanctuary, and the biblical event taking place therefore becomes a miraculous apparition (Philip Guston called it a "disturbance . . . placed in the rear as if in memory").

In *The Flagellation*, like *The Baptism*, Piero fulfilled his religious assignment with an abstract structure. Following the laws of solid geometry, he created a distant realm in which a mystical manifestation of Christ's triumph over physical suffering appears to console the three worldly gentlemen conversing in the foreground.

It is important to keep in mind that the austere beauty of Piero's paintings would not have been understood by his contemporaries on esthetic grounds alone. To the 15th-century viewer, his idealized forms and pure spaces were inseparable from the subjects represented. In other words, the very qualities that make his works so attractive to the 20th-century sensibility contributed to their meaning and value in their own time.

Today, 500 years after his death, the study of Piero della Francesca's art continues. To commemorate this quincentenary, there is a project at Princeton University to create an entirely new tool for the teaching of art and for historical research. A computer program is being developed that will allow a "walk-through" of Piero's cycle *The Legend of the True Cross* on the walls of the church of San Francesco. In this project, digitized images of the paintings are mapped into their proper positions in a graphic representation of three-dimensional space. Using either a hand-held mouse or space ball, the viewer can simulate the experience of walking or even floating through the church, looking at the paintings in full color—from any angle and in their spatial context.

This program will serve as a model for use with other works of art (painting, sculpture and architecture) in the teaching, writing and researching of art history. It is particularly appropriate that this new method, which will ultimately replace slides and still photography for the study of art, should be developed using paintings by Piero della Francesca, whose own work in science lies deep in the history of technology itself. While nothing can replace seeing the real thing, perhaps this electronic innovation will stimulate a new generation of Piero pilgrims.

Courtesy of the Trustees of the National Gallery, London

Pastel-garbed angels offer concert in *Adoration of the Child* (detail), an altarpiece finished c. 1480.

Seen straight on in emphatic confrontation, Christ rises from His tomb in *The Resurrection* (1463-65).

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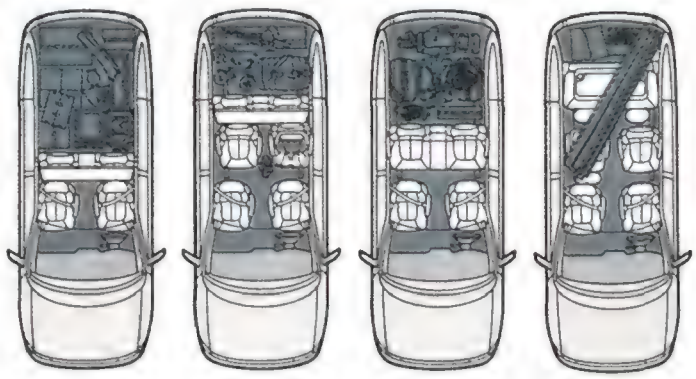

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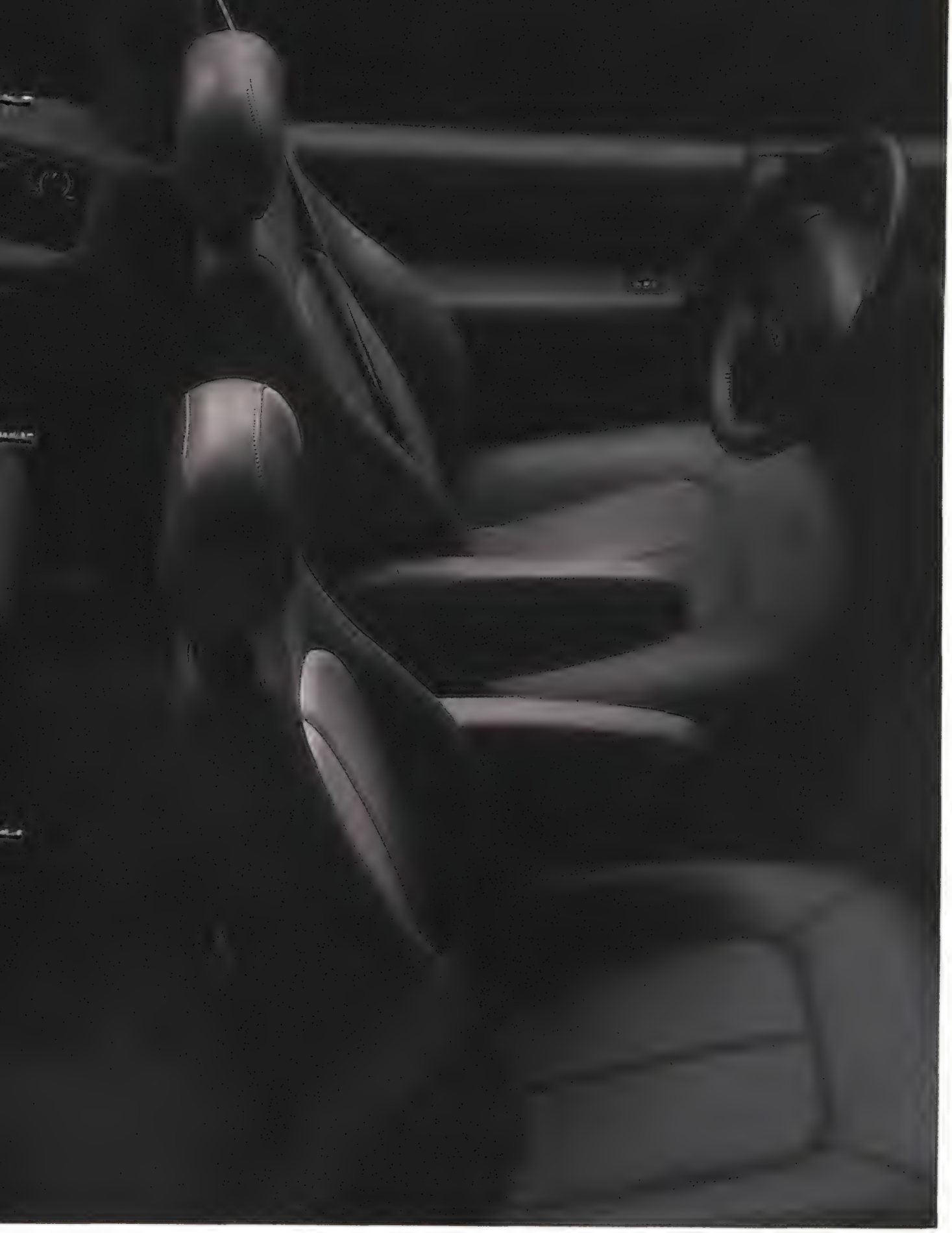

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Elgin (left) struck an insouciant pose for this 1787 portrait in his Guards uniform. The three-foot-tall marble panel of Greek horsemen (above) was one of many taken from the Parthenon circa 1802. They have been in the British Museum for 176 years.

By Donald Dale Jackson

How Lord Elgin first won—and lost—his marbles

After 'saving' the stately Greek friezes by shipping them home, the unfortunate earl found himself pursued by the Furies

It is only a slight stretch to call the story of Thomas Bruce, 7th Earl of Elgin, a Greek tragedy—in more than one sense. Elgin was a Scottish nobleman and diplomat. In the first decade of the 19th century, rashly though legally, he removed nearly half the statuary from the world's most perfect building, the Parthenon of Athens, boxed it up and shipped it to England, thereby inflicting a wound on the Greek soul that has never healed.

In a dramatically appropriate comeuppance, the plundered marbles ultimately ruined him. His collector's mania cost him far more than the beautiful pieces still on display in England could ever be worth: they cost him, first, his fortune—he was in debt the rest of his life, and his son and grandson after him; next, his freedom for three years; then, his career and reputation; and finally, most painfully, his lively, pretty, young wife. The saga of Lord Elgin (the *g* is pronounced hard, as in "grab") is itself a classical drama—so let's thrust caution aside and call it, yes, a tragedy.

Elgin's story is the more poignant because he believed that he was performing an act of benevolence for posterity, saving the Parthenon marbles from oblivion at his own expense. And although his motives were not exactly unselfish—he envisioned ornamenting his estate in Scotland with the statues and carvings—he could find justification for this belief in the neglect and vandalism the Parthenon was suffering under the Turkish regime in Greece.

From the beginning, the Elgin drama was also entwined in politics, played out against the background rumblings of the Napoleonic Wars in which France and England vied for preeminence. Finally, Elgin's decline and fall is one of history's most vivid illustrations of the potency of the pen: his most prominent and vehement critic was Romantic poet Lord Byron, a renowned celebrator of Greek culture and civilization.

Elgin was 33, a modestly successful diplomat, when he and his dark-haired, 21-year-old bride, Mary,

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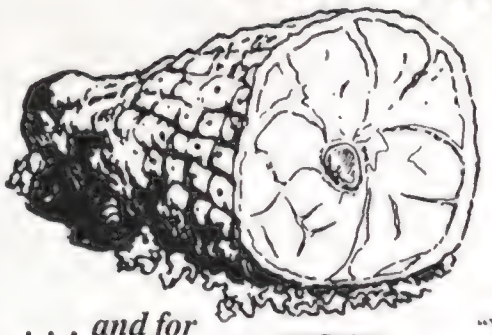

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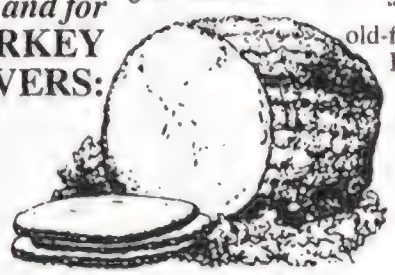

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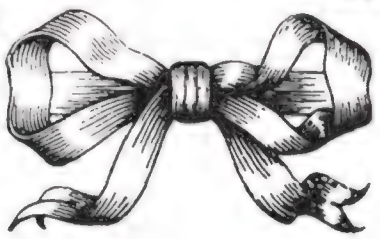

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Lord Elgin's lively wife, Mary, was eventually a source of much woe.

set sail for Constantinople (Istanbul) in 1799. After stints in Vienna, Brussels and Berlin, he had been named ambassador to the "Sublime Porte," as the government of the Ottoman Empire was called. Mary, the spunky, flirtatious daughter of a wealthy landowner, called her husband "Eggy." Told that women were forbidden at Eggy's formal presentation to Sultan Selim III, Mary showed up anyway, disguised as a man though she was four months pregnant.

The first mention of the idea that would eventually result in the Elgin Marbles, as they would be called, had come from the architect working on Elgin's new family manse back on the Firth of Forth. He suggested that a collection of drawings and plaster casts of the art objects adorning ancient Greek buildings would be a boon to British art and education. Elgin liked this notion so much that he tried to persuade the government to subsidize a crew to be sent to Greece to make copies of the treasures on the Acropolis. When his proposal was rebuffed he sent the men himself,

led by a painter named Giovanni Lusieri, whom he recruited in Italy.

Elgin settled into his diplomatic rounds—Britain and Turkey were allied against Napoleon, who in 1798 had invaded the Ottoman dominion of Egypt—while Mary dove into the social swim with her customary panache, teaching the ladies of the harem to dance a Scottish reel. But the artisans in Athens, armed with 22 paragraphs of instructions from Elgin, immediately ran into an obstacle. The disdar, or military governor, who had authority over the place, wouldn't let them onto the Acropolis, explaining that when they climbed upon the buildings they would be able to peep at the women in nearby houses. The problem could only be solved, they were told, with a firman, a document from the Porte. After six months they found another way: the "open sesame" was a £5-a-day gift to the disdar.

When Napoleon's generals surrendered to the British in Egypt in the summer of 1801, Britons were no longer merely allies of the Turks, they were saviors. The grateful Turks could not do enough for their protectors. It was then that the Porte approved the firman, officially unleashing Elgin's men in Athens. Not only could the workmen copy and mold what they pleased, but the text of the firman read "if they wish to take away any pieces of stone with old inscriptions or sculptures thereon, no opposition shall be made." The language was ambiguous, and it was surely no blank check for the pillage that ensued, but it turned out to be enough.

The Ottoman Empire, which had ruled Athens for 350 years, had no special attachment to the glory that was Greece, including the Acropolis. They used the Parthenon as a mosque and later as an ammunition dump. They cheerfully chipped off bits of statuary for a price and even pounded the marble into powder for lime. Years later when Elgin was called on to justify his actions, this was his official line: the place was disintegrating anyway; why shouldn't the British—who could preserve it—appreciate it and enjoy its grandeur?

The Rev. Philip Hunt, of Elgin's embassy staff, consolidated the diplomatic opening by getting official permission to remove several metopes—the marble carvings set into the frieze above the Doric columns—from the Parthenon's south side. Statues and the surviving pieces of the long marble frieze around the building began coming down, too. The work went on through 1801 and 1802. Elgin's laborers, now numbering in the hundreds, built scaffolds and went to work with marble saws, lowering the pieces on ropes. Some pieces didn't make it, splintering into shards where they fell; a letter from Lusieri to Elgin anxiously referred to "barbarisms that I have been obliged to commit in your service."

Elgin and Mary didn't get to Athens

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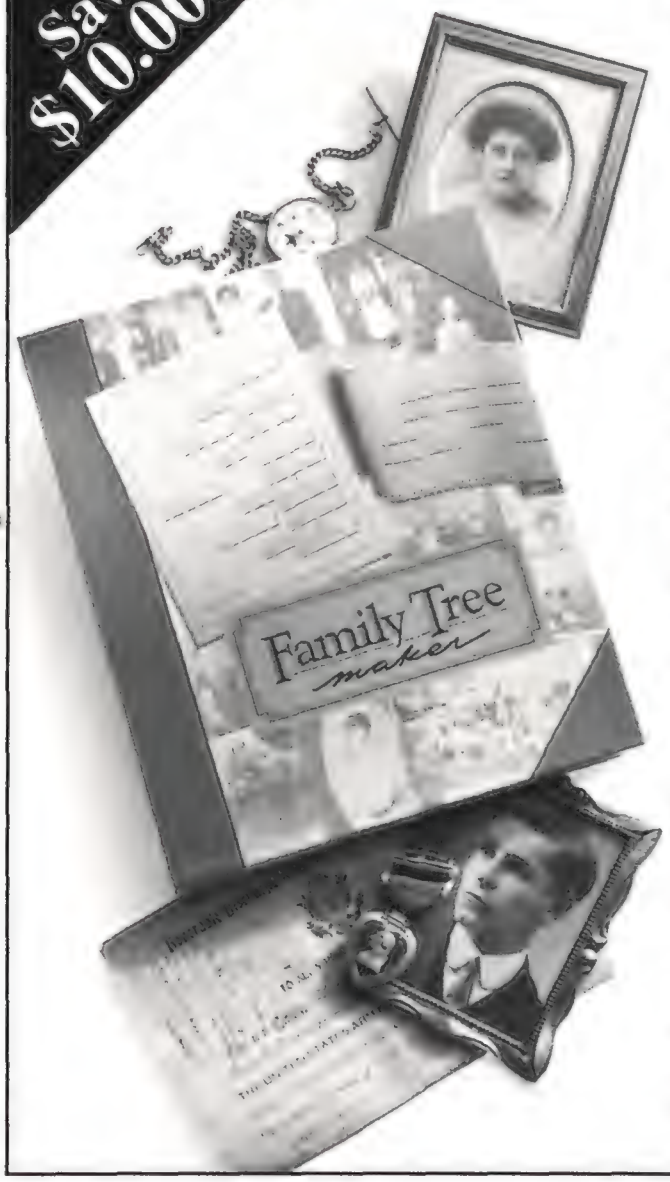

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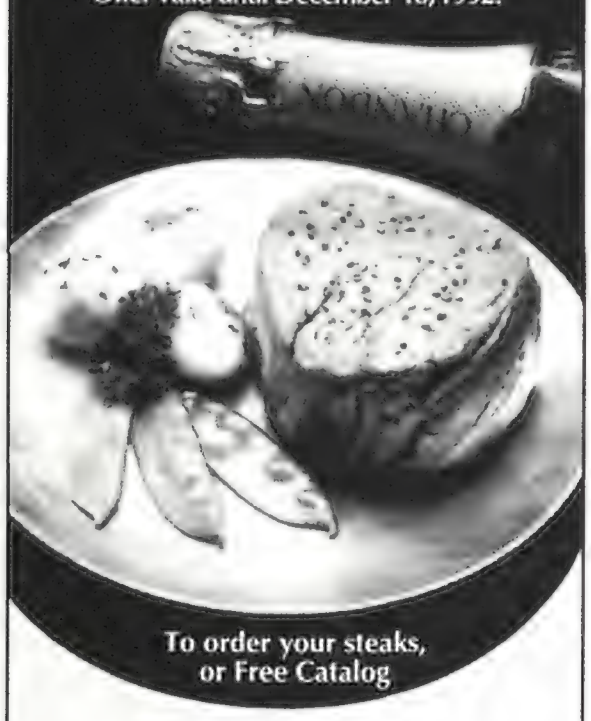

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Watercolor of Parthenon, made in 1801 while work was going on, shows ladder and platforms Elgin's laborers used in lowering marbles to the ground.

from Constantinople for a firsthand look at all this until the spring of 1802. Mary had borne two children in two years by then and was pregnant with a third, but motherhood hadn't cramped her style. When she managed to sweet-talk a ship's captain into loading more marbles aboard than he wanted to, she boasted of her exploit in a letter: "Do you love me better for it, Elgin?" She added that it only proved what she had always believed, "which is how much *more* Women can do if they set about it, than Men." Elgin by most accounts was cool, moody and tightfisted—except where his marbles were concerned. His irrepressible wife must have been a trial as well as a joy, but the storms that were to destroy their marriage were still beyond the horizon.

The ambassador's main burden was his brittle health. Though only 36 in 1802, Elgin suffered from a variety of afflictions, the most extraordinary of which was a peculiar "ulcer" or "corruption," in the medical parlance of the day, that ate away most of his nose and left him grotesquely disfigured. His doctors thought that the copious doses of mercury he took medically might have been the cause.

With crates of marbles piling up at the port of Piraeus, Elgin had to find a way to get them home. He knew that if he dawdled, the benign political atmosphere could change. The French, who had pillaged Rome and cast covetous glances at the Parthenon, might even wangle a rival firman for themselves if peace broke out. Hunt suggested using a Royal Navy man-of-war as a transport, but the navy couldn't spare one. Elgin then bought his own ship, only to have it sink in a storm off the southern tip of Greece (the marbles aboard were salvaged). Ultimately, it took 22 ships to freight the collection to Britain.

By the start of 1803 Elgin and Mary were ready to head home. England and France had signed what turned out to be a temporary peace treaty, but Lusieri was still filling crates with chunks of the Parthenon and other buildings. On the trip home Elgin's luck ran out. Deciding to travel overland through Italy and France, he and Mary learned before they reached Paris in May 1803 that Anglo-French fighting had broken out again. Despite his diplomatic status, Elgin became a prisoner of war and for a while was held in a fortress-like prison.

Frequent contributor Donald Dale Jackson wrote for SMITHSONIAN *on Mount Rushmore, in August 1992.*

Separated from her three children, who had traveled on by sea with their nannies to England, Mary beamed her formidable charm on Charles Talleyrand, the French Foreign Minister, and others, to get her husband released. To no avail. As detentions go, the Elgins' was on the cushy side. They stayed in a Paris hotel, then in a spa, and finally in the Pyrenees, where they made the social rounds. There they languished until 1805.

Elgin's troubles were building elsewhere, too. The first 150-ton shipment of marbles had arrived in England, but in Athens his man Lusieri was told that Elgin's credit had run dry, meaning he could no longer afford cargo space. Then, too, a Scot named Robert Ferguson, a friend also being held in France, had begun spending a lot of time with the Elgins, and when the earl was suddenly imprisoned in November 1803, Mary and Ferguson were thrown together more and more. Though she fought it at first, a romance blossomed. She was devastated when her fourth child, born in France, died at the age of 1, and in October 1805, she was allowed to go home to England. Ferguson had also been released, and back in London the two became lovers. By then Elgin was at large in Paris again, though still restricted to France, and busily buying art. He had no idea that he was being cuckolded.

Nine more months passed before Elgin was permitted to return home, in July 1806. It was rumored that he would have been released earlier had he agreed to give his collection to France. At home he immediately confronted woes both material and marital. His free spending in the East, not only on the marbles but also on elaborate gifts and expeditions he financed personally, had plunged him deep into debt. The Foreign Office, which expected aristocratic envoys to pay most of their own expenses, was disinclined to help. Not surprisingly, there was no talk of a new assignment, and his waning career was clouded further by his parole from France, which obliged him to return to Paris at the pleasure of Napoleon.

The marbles that had arrived so far were in storage, where they would stay until they were first exhibited, a year later. Elgin was no longer sure what he wanted to do with them, but he had abandoned as too expensive any idea of installing them in the manor house on the Firth of Forth.

His reunion with Mary was the cruelest blow. Still concealing her affair with Ferguson, she told Elgin that she was willing to live with him on one condition: no sex. A witness at their subsequent divorce trial testified that Mary had begun to lose interest in her husband when his nose wasted away. Elgin spurned her offer, and Mary and the children moved in with her parents. Months later, Elgin learned the truth when he discovered a love letter from Ferguson to Mary. When

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confronted, she admitted her love for Ferguson. "I am sure, Elgin," she wrote him soon afterward, "I never meant to make you miserable."

But miserable he was, and more so during the ensuing trial, as the lurid details of her adultery became public. Elgin filed a civil action, asking damages of £20,000 from Ferguson. As the trial unfolded, proceedings were published and sold in pamphlet form.

The earl's lawyers depicted Ferguson as a demonic seducer who drove a wedge into the Elgin marriage by villifying his lordship. Ferguson's manners, the jury was told, were "soft and alluring," and he was "well practiced in the arts which render gallantry successful." Ferguson denied he had shared Mary's bed in Paris, which he called a "voluptuous and fascinating capital . . . where temptation is ever busily at work." But he did admit they had been intimate in London. "Alive to such unequalled excellence and beauty," was the way he put it, he "fell a devoted victim to such a shrine."

Scathing foe, poet Lord Byron made political game of Elgin in verse.

The sordid, titillating truth was that Ferguson had been a regular midnight caller at Mary's house on Baker Street. A maid testified that Mary greeted him in a "loose gown," while a hotel chambermaid recalled that the couple occupied adjoining rooms, with a connecting door, and used but one bed. A former member of Elgin's embassy staff described a "certain look" Lady Elgin would get in the presence of handsome men. Pressed to elaborate, he identified the look as "flirtatious." The jury took five minutes to find for Elgin and award him £10,000 in damages. Mary and Ferguson subsequently married, but Elgin stonily refused her pleas to see their children.

Hostile art critic Richard Payne Knight said marbles were Roman, not Greek.

The crucial firman was now revoked. The earl leased a house in central London to exhibit his treasures, and the kingdom's artistic and cultural elite hastened to have a look. For the most part, the reaction was a chorus of raves. A muscular prizefighter was prevailed upon to pose nude beside the marbles to demonstrate the accuracy of the anatomical details. The Athenian wonders even penetrated popular commercial culture: an enterprising merchant offered "Ross' newly invented Grecian volute headdress, formed from the true

marble models from the Acropolis."

Regrettably for Elgin, the crabby exception to the general acclaim was a man with formidable cultural clout, an arbiter of artistic affairs named Richard Payne Knight. Payne Knight, who dominated the influential Society of Dilettanti, pronounced himself unimpressed, without even viewing the marbles. "You have lost your labors, My Lord Elgin," he proclaimed. "Your marbles are overrated. They are not Greek. They are Roman of the time of Hadrian." And ever afterward this high priest of British culture clung to his wrongheaded opinion.

Payne Knight found an ally, and Elgin his most powerful and unforgiving foe, in the young and greatly gifted Lord Byron. The 21-year-old Byron took his first swipe at the marbles in 1809, calling them "misshapen monuments and maim'd antiques." In a particularly vicious footnote, Byron slyly tweaked Elgin in his most sensitive area by referring to "the figures, with and without noses, in his stone-shop," and suggested by innuendo that syphilis had ravaged his nose.

Byron next turned up in Athens, where his guide was none other than Elgin's still active if hard-pressed agent, Lusieri. The poet was enchanted by the sad, ancient beauty of Greece and appalled by the plundered Parthenon. The full Byronic blast came a year later with the publication of the instantly famous and hugely popular narrative poem, *Childe Harold's Pilgrimage*—the first edition sold like hot cross buns.

Byron's irresistible and emotional cadences permanently changed the terms of the debate on the marbles. By what right, he asked, had Elgin acquired these glorious remnants—"the last poor plunder from a bleeding land"? The question hadn't been asked before, and it would be raised only briefly when Parliament later debated Britain's acquisition of the marbles. Byron introduced the issue of nationalism, which would shadow the marbles from then on. His final salvo at the reeling Elgin came in the harsh and personal *Curse of Minerva*, in which the goddess condemns not just Elgin but "all his seed: Without one spark of intellectual fire, / Be all the sons as senseless as the sire."

Elgin had concluded that his only hope of recouping his investment in the marbles was to sell them to the government for exhibition in the

Scandalous government plan to buy marbles ("stones") was lampooned: says one character, "Never think of bread when you can have stones."

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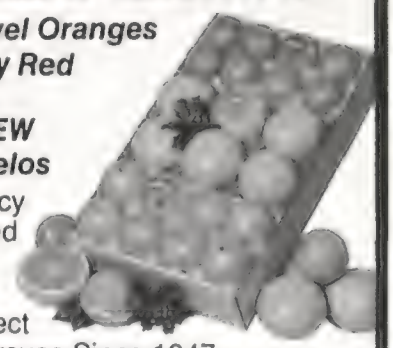

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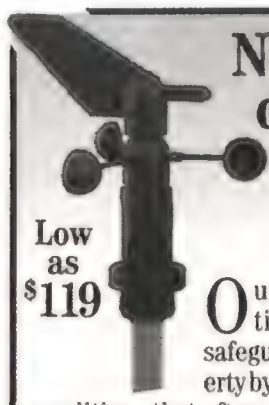

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In happier times, Benjamin Hayden painted this glowing portrait of the Elgin children, George, Mary and Matilda, with their nurses.

British Museum. He carefully added up his expenses—wages paid his artisans and laborers, salvage costs for the sunken ship, shipping fees, interest on his loans—and arrived at a total of £62,440. The government's first offer was £30,000, which Elgin turned down as "wholly inadequate." (He had tried to strengthen his case by writing a pamphlet giving his version of how he obtained the marbles, discreetly titling it "A Memorandum on the subject of the Earl of Elgin's Pursuits in Greece." It was published anonymously, but the lumbering, comma-heavy sentences left little doubt about the author's identity.) His creditors were meanwhile closing in, and when one £18,000 debt was transferred to the government, the regime impounded the marbles as collateral.

In desperation, Elgin asked Parliament to appoint a select committee to investigate his acquisition of the marbles and set a price. As the star witness at the subsequent hearings, Elgin declared that by removing the marbles he had rescued them from destruction. He came across as upright and honorable, if also imperious and insensitive. As he had incurred further costs, he had revised his expense account upward—it was now £74,240. After hearing several other witnesses, the committee concluded that Elgin had obtained the marbles honestly and that they would indeed be a boon to the fine arts in Britain. They offered him £35,000. In the Parliamentary debate that followed, only one member, a Mr. Hugh Hammersley, mentioned Byron's moral issue. The final vote was 82-80 to accept the committee's proposal. Elgin grudgingly took the £35,000, more than half of which went for his debt to the government. Fifteen years after he began acquiring them (it was now 1816), he had finally lost his marbles.

Elgin remarried in 1810, choosing another Scottish gentlewoman, less than half his age, who bore him eight more children. The family spent most of their time in Paris, where his creditors couldn't reach him. When the Greeks began their drive for independence in 1821, Elgin was one of their earliest British supporters, along with the detested Byron, who died in Greece three years later.

Lord Elgin died in Paris in 1841. Obituary notices praised him for "rescuing the marbles of the Parthenon at Athens from the destruction which

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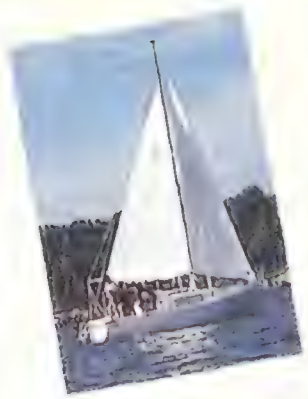

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Elgin's son James also got a reputation for destroying a cultural shrine—a palace in China. He was cartooned presenting credentials to emperor in 1857.

inevitably awaited them." Elgin's son James, the 8th Earl, forged the kind of career in diplomacy and colonial administration that Elgin might have enjoyed had he escaped the curse of the marbles. But the shadow of the Parthenon fell on James, too.

He earned an important post as plenipotentiary to China in 1857, in the wake of the Opium Wars, which had stirred deep East-West hostilities. This Lord Elgin was a dove by the standards of his time; imperialistic posturing made him uncomfortable. But as attempts to force the Chinese to expand trade with the West failed, Elgin gradually took a harder line. In 1860 after French and British troops went on a rampage of pillaging and looting at the spectacular 80-square-mile summer palace of the Chinese emperor near Beijing, stripping the grand buildings of jewels, art objects, silk and other treasures, Elgin deplored the act but still thought the Chinese had to be taught a "lesson." He ordered the burning of what was left of the summer palace. The name "Elgin" came to stand for the same thing in China as it did in Greece: devastation of a cultural shrine.

From time to time over the years, disciples of Lord Byron have demanded the return of the marbles to Athens. The calls have come from Greeks, such as writer Nikos Kazantzakis, and from Britons, such as writer Lawrence Durrell and the Labor Party's Neil Kinnock. Kazantzakis' indictment was the spiciest: "In her sooty vitals," he wrote, "London stores these marble monuments. . . just as some unsmiling Puritan might store in the depths of his memory some past erotic moment, blissful and ecstatic sin."

British prime ministers have repeatedly tiptoed to the brink of returning the marbles, only to make a hasty about-face. In 1924 Ramsay MacDonald rejected a proposal to ship them back in honor of the 100th anniversary of Byron's death. Just after World War II Clement Attlee passed up a chance to repatriate the statues as a tribute to Greece's defiance of the Nazis. When Harold Mac-

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millan declared himself willing to consider the matter in 1961, the London *Times* instructed him to "dismiss the idea from his mind," which he apparently did. The marbles, the *Times* said, were "bought and paid for." The British argue that Elgin got the marbles honestly, with permission from the government then in power. They contend also that returning them would "open the floodgates" to claims on thousands of museum holdings. The Venus de Milo and the Winged Victory of Samothrace are as Greek as the Parthenon statues, they point out, and they're in the Louvre.

The debate reached its highest pitch in the 1980s, when actress-turned-culture minister Melina Mercouri launched a high-visibility campaign. She charged the British with "vandalism" and called their retention of the marbles "provocative." She gained the support of culture ministers from 56 nations (against 26 abstentions and zero votes against) in a 1982 UNESCO resolution. Mercouri finessed the "floodgates" argument by stressing the uniqueness of the Parthenon—"the symbol of Greek democracy," she called it, "the blood and soul of Greece."

She even flushed the current Lord Elgin into the open. His lordship let drop the fact that he had not dared visit Greece under his real name, and told an interviewer that he was sorry his great-great-grandfather ever saw the bloody stones. "I mean, from the financial point of view it was a disaster," he sighed, "and in addition to that, jokes were made about marbles, and whether you'd lost them or not—a very sad state of affairs." Mercouri's campaign sputtered as the others had. She left office in 1989—and the marbles are still safely tucked in the "sooty vitals" of the British Museum.

While serving as the Greek Minister of Culture from 1981-89, fiery film star Melina Mercouri agitated for the marbles' return.

Book reviews

Crickets and Katydids, Concerts and Solos
Vincent G. Dethier
Harvard University Press, $18.95

A pragmatist would describe the sounds of crickets, grasshoppers and katydids as a cacophony of scrapes, squeaks and whirs. But to ears more attuned to life's gentle pleasures, these small creatures make sunlit meadows ring in complex symphonies, and forest fringes vibrate with ecstatic songs of love. Sympathetic listeners hear insects singing in lyrical chorus; they savor a seasonal progression of changing tempo and key, revel in each "shift in mood and theme." Vincent Dethier's loving account of the instruments in nature's insect orchestra reflects this sensitivity to the beauty of summer's little singers.

Although slim, this volume contains a full measure of good science. The author, a distinguished professor of zoology at the University of Massachusetts in Amherst, conveys a surprising amount about the orthopteran (straight-winged) insects of New England, and uses these creatures to illustrate a series of significant biological and ecological principles. But as he explains in his preface, *Crickets and Katydids* tells about a trio of summers spent in the Merrimack River Valley of central New Hampshire, and is an invitation to learn more about the elegant harmonies of the natural world.

The story is set in the summer of 1938, when the author, about to begin graduate school, went to work for a retired professor of physics named George W. Pierce. The job was an unusual one. Pierce was interested in insect sounds, and he wanted Dethier to "collect, iden-

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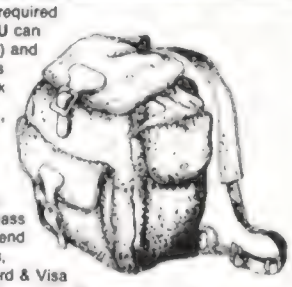
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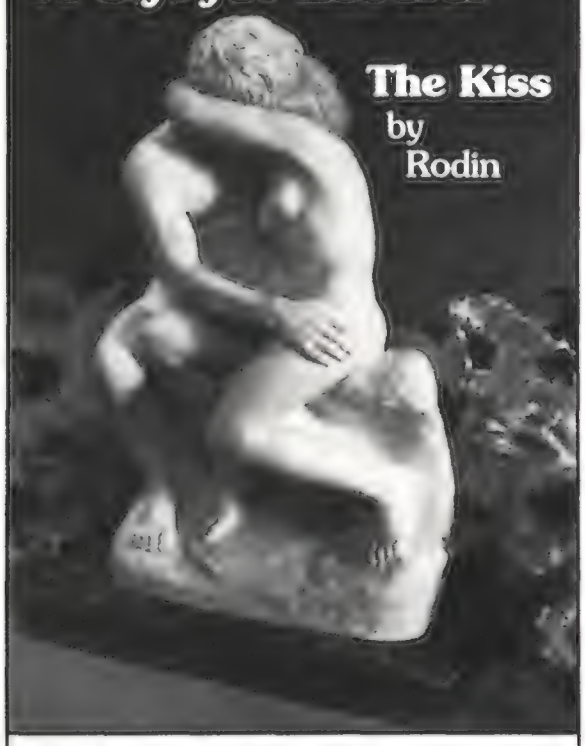

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tify, and care for as many kinds of crickets, locusts, and katydids as could be found" in the neighborhood of Pierce's summer cottage in Franklin, New Hampshire. Pierce would then record the songs of the captured insects and analyze the features of each species' voice and repertoire. "A more idyllic occupation would be hard to imagine," Dethier writes nostalgically.

The captured insects needed nothing more than a leaf of lettuce to keep them happy, so Dethier could devote most of his time to collecting and identifying. In practice, that meant wandering the countryside around Pierce's cottage and listening for the sounds of each of the region's three dozen or so orthopteran species as they emerged in their appointed habitats and seasons. "Under what other circumstances," muses the author, "could a person lie on his back staring at the marching cumulus and be working, while to all appearances he was loafing?"

Appearances, as always, can be deceiving. Many of the orthopterans are small and well camouflaged, and they reveal themselves only by singing. These songs may be clear and distinctive to the females they are meant to attract (in most species it is only the males that sing, or more properly, fiddle), but they blend so easily into the background of outdoor sounds that most humans never even notice them. Hawthorne, Dethier comments, described the song of the snowy tree cricket as "an audible stillness" and said "if moonlight could be heard, it would sound like that." Furthermore, because sound announces the presence of a potential meal, singing is dangerous. The slightest rustle will quiet most of nature's singers, so anyone wanting to hear them must cultivate silence.

Although entomologists are commonly believed to spend their days dashing across fields waving large nets, Professor Pierce didn't hire Dethier because of the young man's energy or speed afoot. He needed a young assistant "because the pitch of so many of the [insect] songs is too high to be perceived by middle-aged and elderly ears." Even with this natural advantage, however, the author had to learn what to listen for before he could sort out the sounds of the orthopteran singers.

"Clear, musical chirps or trills," we are told, distinguish the songs of crickets from the "nonmusical buzzes, clicks, whispers, snaps" of locusts, meadow

grasshoppers and katydids. Katydids make "simple infrequent squawks or buzzes"; sequences of buzzes interrupted by clicks identify various species of grasshoppers. To navigate this clatter, Dethier had to learn each orthopteran song and then subtract it from the ongoing symphony. When there was something left over, he had his cue to seek out a new singer.

So Dethier roamed the meadows, brooks and rocky outcrops of central New Hampshire. He swept his net through patches of grasses and brush, seining the weeds for locusts and katydids. He set traps in the forest floor—cans baited with beer, blackstrap molasses and cornmeal mush—to capture short-legged and American shield-bearers, and was captured himself late one night when the local sheriff spotted him crawling around a graveyard in search of what turned out to be a Carolina ground cricket.

He savored the voices "of crickets chirping in fields and gardens, of bush katydids in pastures overgrown with goldenrod, sawing away on their reedy ill-tuned violins, of locusts fluttering in crazy flight over barrens and ledges" and listened to crowds of grasshoppers lustily serenading potential mates. He identified the nuances of habitat favored by each species and noted the changes in light and temperature that prompted each voice to enter the long summer chorus. He even learned to appreciate the "most momentous event" in Franklin's quiet diurnal round, the "passage through the station of the daily fast freight from White River Junction in Vermont."

Richly written, elegantly organized, and beautifully illustrated with Abigail Rorer's graceful line drawings, this charming reminiscence succeeds on every level. It illuminates the habits of New England's 40 or so orthopteran insects and teaches us to appreciate their adaptations and variation. It reminds us to attend to the world around us; to listen to its jubilant songs, breathe in the "winey evanescence" of fallen apples and savor the caress of cool air flowing from the fringes of a shady hardwood forest. It recalls the pleasures of being young, of finding new facts and seeing new patterns in the mosaic of nature, and captures the ineffable sensations of a fine New England summer.

John R. Alden spent many happy summers in upstate New York and southern New Hampshire.

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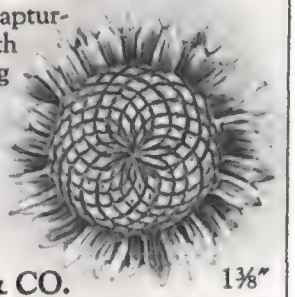
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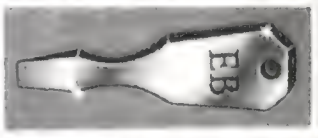
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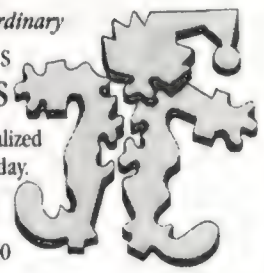

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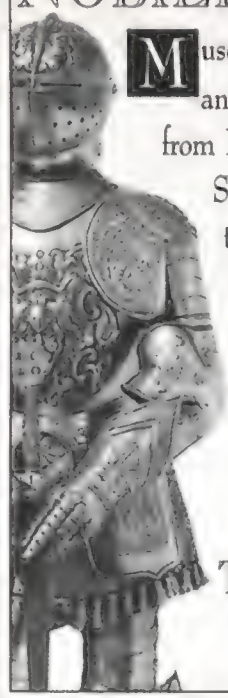

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Why We Eat What We Eat: How the Encounter Between the New World and the Old Changed the Way Everyone on the Planet Eats
Raymond Sokolov
Summit Books, $22

It is impossible not to get worked up about food when you are traveling with Raymond Sokolov. Here he is in Puerto Rico, roaming the countryside in search of native cuisine: "The 'restaurant' I most lusted to try out was Willy's, a shack at a bend in the road between Mayagüez and Maricao. Willy's opened in the afternoon and advertised as its specialty *cuajito*—pork stomach." In a trucker's restaurant in San Juan, he delights in finding *gandinga*—cubed pork livers, hearts and kidneys. "The basic dish is a ragout," he observes, "and has, shall we say, a strong taste."

Still on the trail of Puerto Rican food (the "most diversely original cuisine in the Americas"), he ducks into a hole-in-the-wall in New York City and asks for the plat du jour, *mollejas*—sweetbreads, he assumes. A woman brings him a plate of gizzards. "Not wanting to hurt her feelings, I ate them all."

In Brazil, musing about the cuisine of Bahia, Sokolov recalls a scene in Jorge Amado's tale *Dona Flor and Her Two Husbands*. "For me the most memorable of her culinary lessons in the film was the one in which she demonstrated how to prepare a crab dish flavored with *dendê* [palm] oil." He will never forget Dona Flor's first husband "emerging from a bout with her crab dish, his teeth dripping yellow from *dendê*."

The premise of *Why We Eat What We Eat* is straightforward: in the year 1492 two worlds collided, exchanged a host of new foods and never ate the same way again. Before Columbus, the inhabitants of the Americas had no pigs, cows, chickens or sheep. No milk, cheese or butter (no cheese *quesadillas* or chicken tacos), no fried foods at all. No wheat, apples or sugarcane. Europe and the rest of the world lacked tomatoes (no pasta marinara), potatoes (fish but no chips), green beans (no haricots verts), chile peppers (no fiery Szechuan fare), chocolate and maize.

Cooks quickly adapted these new foods in their own ways. Street vendors in Europe sliced Peruvian potatoes into French fries; a chef in Saratoga, New York, refined this idea further, shaving potatoes into wafer-thin chips.

The charm of this book is that it is

often impossible to guess where Sokolov is headed. He sets off down a path to explain why commercial tomatoes taste so bad (not enough time ripening in the sun), then veers into a history of gazpacho ("the soup the tomato overwhelmed") and finds himself in the Old Testament (Ruth 2:14): "At mealtime come thou hither, and eat of the bread, and dip thy morsel in the vinegar."

California black olives are blander than their Mediterranean relatives, Sokolov reports, because processors leave them too long in a lye bath that leaches out all the olivey bitterness. The turkey, a New World native, went to Europe to be refined into the domesticated animal we eat today. So did our strawberry, the offspring of a French marriage between wild plants from Virginia and Chile.

Our lime, the Tahiti lime, is really a hybridized green lemon. (The Key lime, the true lime, now all but vanished from the Florida Keys, is still grown elsewhere in the hemisphere.) Here is Sokolov's paean to another fruit that has lost its foothold in the marketplace, the golden russet apple: "They were surely plain to look at and their texture was not melting, but the flavor was as complex as a well-made wine. The basic taste was tart but not severely so. . . . And it arrives on the tongue coated in perfume."

Sokolov has also learned from his own peregrinations. Noting that butchers at Los Angeles' Grand Central Market sell three of the four kinds of tripe, he urges readers in Southern California to badger the butchers to provide the fourth "so that a great Norman recipe [tripe à la mode de Caen] can be prepared, perhaps for the first time, in a completely authentic manner in this country."

His tastes are catholic. At an "extremely unassuming taco stand" in the same market, he reports: "You can buy two fresh tortillas rolled around a nondescript filling of chopped meat and lettuce. There is a mildly hot red sauce with chunks of tomatoes still visible in it, guaranteeing that it was made on the spot. And you can also munch the fresh little yellow chilis that sit on the counter as a sort of condiment. Nothing could be simpler. What makes it work are the tortillas. They are fresh, pliable, and taste strongly, you might even say aggressively, of corn."

It goes without saying that this is not a book to read on an empty stomach.

Karl Ackerman dines and writes in Charlottesville, Virginia.

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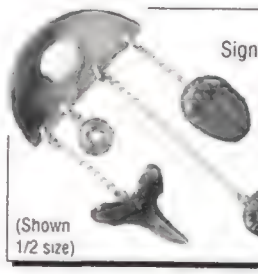

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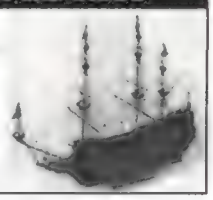

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Select Comfort's unique air support system lets you control the feel and firmness of your bed — simply by pushing a button. Your mattress can be firmer than the firmest innerspring or softer than the softest featherbed...helping you sleep more comfortably, reducing back pain and muscle aches, and providing true support. Change the firmness whenever you like to meet your exact preference.

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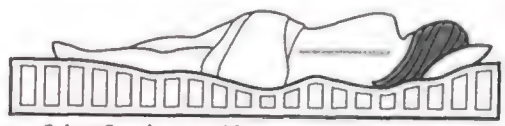
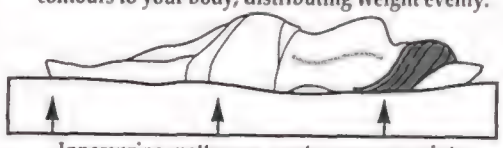
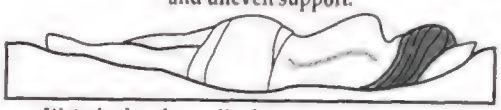


Select Comfort provides proper back support and contours to your body, distributing weight evenly.



Innerspring mattresses create pressure points and uneven support.



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Smithsonian highlights

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Begin your visit at the Smithsonian Information Center's Associates' Reception desk—open from 9 A.M. to 4 P.M. daily—in the Castle. The Court, a restaurant for Associates located in the National Museum of Natural History, is open from 11 A.M. to 3 P.M., weekdays, and from 9:30 A.M. to 3 P.M., weekends.

Freer remains closed
The Freer Gallery of Art is closed until May 9, 1993.

Holiday events
Traditions of Christmas, Hanukkah, Kwanzaa and the New Year will be observed at the National Museum of American History's annual Holiday Celebration, December 26-31, noon to 4 P.M. daily. Festivities include music, storytelling and craft demonstrations.

Trees of Christmas, a special exhibition featuring an array of decorated trees and other seasonal objects, will be on view throughout the museum from December 12 through January 3, 1993.

Special December exhibits, events

National Museum of Natural History
The American Wildlife Image and Charles Fracé (through May 2, 1993) Paintings by the noted American artist capture animals in their natural habitats. See *Highlights continued*, page 157.
EarthSense (through September 6, 1993) Exhibition of photographs focuses on global efforts to safeguard our planet.
Seeds of Change (through May 23, 1993) Quincentenary exhibit explores the exchange, begun 500 years ago, between the Old World and the New.

National Zoological Park
Amazonia New permanent installation re-creates microcosm of the world's largest rain forest. Exhibition examines the wonders of this rich habitat and the forces threatening its survival.

National Museum of American History
Put the City Up: Chicago Architecture, 1800-1992 (through March 14, 1993) Show tracing the city's architectural development features the work of such architects as Frank Lloyd Wright.
Kiowa Culture in Transition, 1925-1955: The Photographs of Horace Poolaw (through January 5, 1993) Images document cultural change and continuity.
American Encounters Permanent exhibit focuses on American Indian, Hispanic and Anglo-American cultures of New Mexico's Upper Rio Grande Valley.

National Air and Space Museum
Where Next, Columbus? (opens December 12) New gallery looks ahead to the next 500 years of exploration and examines the key issues surrounding future space travel.
Star Trek (through January 31, 1993) Show celebrates the 25th anniversary of the famed TV series. Passes may be required; call (202) 786-2122 for details.
Air Power in World War II: Republic P-47 Thunderbolt (through May 1, 1993) Exhibit features the multirole fighter called the "Jug" (see page 85).

National Museum of American Art
Vision and Revision: The Hand-Colored Prints of Wayne Thiebaud (through February 15, 1993) Works by the major contemporary American artist.
Memory and Metaphor: The Art of Romare Bearden, 1940-1987 (through January 3, 1993) Retrospective features oils, watercolors and collages by the distinguished American modernist.

Renwick Gallery
American Crafts: The Nation's Collection (through January 24, 1993) Exhibition honoring the Renwick's 20th anniversary showcases 130 objects that span the development of crafts in the 20th century—glass, clay, metal, fiber, wood.

National Portrait Gallery
Recent Acquisitions (December 17-June 6, 1993) Portraits of notable Americans.
In Pursuit of Fame: Rembrandt Peale 1778-1860 (through February 7, 1993) The life and work of one of this country's most talented 19th-century painters.
The Spirit of Party: Hamilton and Jefferson at Odds (through February 7, 1993) Show examines the conflict between the two statesmen.

Arthur M. Sackler Gallery
19th-Century Photographs from Sri Lanka (December 20-March 21, 1993) Images taken by British photographers W.L.H. Skeen and Charles T. Scowen at the end of the 19th century.
The Golden Age of Sculpture from Sri Lanka (through September 26, 1993) Exhibition of 52 ancient masterpieces of bronze casting includes many of the major monuments of Sri Lankan art.
Metalwork and Ceramics from Ancient Iran (runs indefinitely) Exhibit presents 45 artifacts created from 2300 to 100 B.C.
Buddhist and Jain Sculpture from South Asia (runs indefinitely) Sculptures of bronze, gilt-bronze, stone and marble.

National Museum of African Art
Elmina: Art and Trade on the West African Coast (through February 28, 1993) Exhibition focuses on Elmina, a trading post established in 1480 on Africa's Gold Coast, now Ghana.
Recent Acquisitions/New Dimensions (through January 3, 1993) The work of nine modern artists from Nigeria, Côte d'Ivoire, South Africa and Kenya.
Images of Power and Identity Recently reinstalled permanent exhibit features 100 masterworks from the collection.

Anacostia Museum
Richmond Barthé/Richard Hunt: Two Sculptors, Two Eras (December 20-February 28, 1993) Exhibition surveys the influential careers of these two African-American sculptors.

Hirshhorn Museum & Sculpture Garden
Directions—Jac Leirner (December 17-March 14, 1993) Sculptures by the Brazilian artist raise compelling questions about contemporary value systems.
Eva Hesse: A Retrospective (through January 10, 1993) More than 100 sculptures, wall reliefs, drawings, paintings, by the German-born American artist.
Joseph Kosuth WORKS (through January 25, 1993) Site-specific installation by the contemporary artist incorporates "found" texts from Kafka.

Arts and Industries Building Experimental Gallery
The Kids Bridge (through March 1, 1993) Hands-on exhibit from the Children's Museum of Boston explores issues of identity, ethnicity, race and racism (see *Mall*, page 20).

S. Dillon Ripley Center
Imperial Austria: Treasures of Art, Arms & Armor from the State of Styria (through January 24, 1993) Some 250 works from the late Middle Ages through the 17th century (see *Mall*, page 20).

National Museum of the American Indian (New York)
Pathways of Tradition (through January 24, 1993) The George Gustav Heye Center's first public exhibit in its new home at the Old U.S. Custom House in lower Manhattan. Show previews the new museum, featuring 103 objects that represent a cross section of living American Indian cultures and creativity.

Cooper-Hewitt Museum (New York)
The Power of Maps (through March 7, 1993) Exhibition examines the significance of maps as instruments of communication, persuasion and control.
Revolution, Life and Labor: Soviet Porcelains, 1918-1985 (through April 4, 1993) Exhibit showcases the recently acquired collection of porcelains assembled by Ludmilla and Henry Shapiro during their 40 years in Moscow.

Exhibition catalogs

Catalogs available currently include:
Vision and Revision: Hand-Colored Prints by Wayne Thiebaud ($35/$19.95 paper)
The Spirit of Party: Hamilton and Jefferson at Odds ($12.95 paper)
Imperial Austria: Treasures of Art, Arms & Armor from the State of Styria ($45 cloth)
To order, send check or money order to Smithsonian Museum Shops, 8308 Cinder Bed Road, Newington, Virginia 22122. Include 15 percent of purchase to cover postage, handling (minimum, $1.75).

Office of Elementary and Secondary Education

The Office of Elementary and Secondary Education (OESE) offers a variety of programs, publications and services for teachers of prekindergarten through grade 12 nationwide. *Protest and Patriotism: A History of Dissent and Re-*

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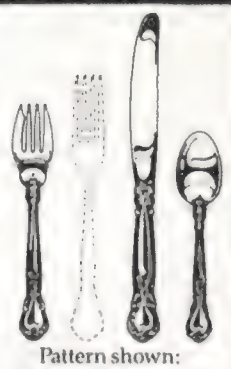

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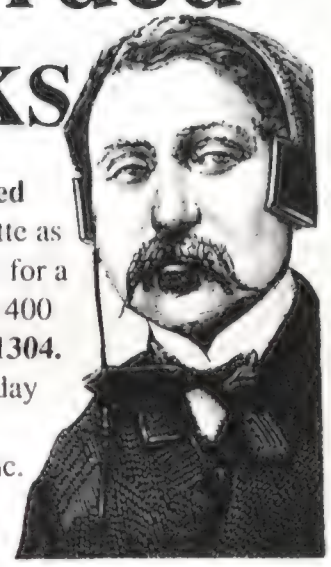

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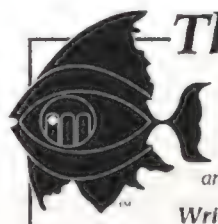

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Smithsonian on the air

Folk Masters 1992 Recorded live at the Barns of Wolf Trap, series presents performances of virtuosos of New World folk music. Programs this month include rockabilly and Western swing. Check local public radio listings.
Dialogue A weekly public radio series on national and international affairs featuring conversations with renowned scholars, authors and political figures. A production of the Woodrow Wilson International Center for Scholars in association with Radio Smithsonian. Check local listings.

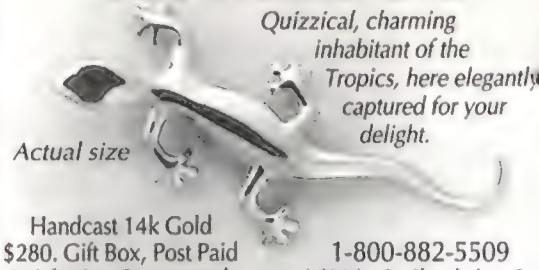
Resident Associate Program

To become a Resident Associate, or for fee and ticket information, call (202) 357-3030. December events include:
Discovery Theater Live performances for young audiences. Current show, *Beauty and the Beast*, runs through December 31. Call (202) 357-1500, 10 A.M.-4 P.M., weekdays, for information, reservations.
Passing the Torch: Mythological Education (December 14; 8 P.M.) Presentation and panel discussion on the meaning and importance of myths. Panelists include George Lucas, Bill Moyers.
A Wassail Fest and Feast (December 12; 7:30 P.M.) A lively evening of 16th-century music and dining.

Smithsonian Institution Traveling Exhibition Service

SITES organizes and circulates exhibitions to cities throughout the United States and abroad. To sponsor a show in your community, write SITES, Smithsonian, Washington, D.C. 20560. Here are some December exhibits:
• Austin, Texas (December 5-January 17, 1993) *The Realm of the Coin: Money in American Art, 1960-1990*, Laguna Gloria Art Museum.
• Jamaica, New York (December 12-January 10, 1993) *Seeds of Change* (panel exhibition based on the NMNH exhibit), Queens Borough Public Library.
• Portland, Oregon (December 12-January 10, 1993) *Family Folklore*, Friends Gallery.

The Gecko Pin



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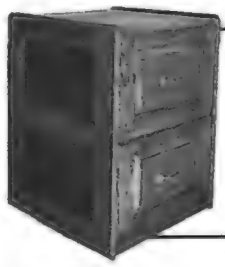

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Highlights continued

Bringing nature's grandeur to light

"When I was a young child, I loved two things," says Charles Fracé, "animals and drawing." This abiding devotion has informed, inspired and sustained a 30-year career that has established him as one of the world's foremost wildlife artists.

"The American Wildlife Image and Charles Fracé," on view at the National Museum of Natural History through May 2, 1993, places 36 of the artist's works in the context of the tradition of American wildlife representation.

Fracé began drawing at the age of 5 and taught himself to paint when he was 15. Later, he became a commercial illustrator, but turned exclusively to wildlife art in 1963. "His style has an uncanny ability to grab and engage audiences with the essential beauty and grandeur of the animals he depicts," says exhibition curator Robert Phelan. His images are accessible, drawing viewers into other worlds, allowing them to experience the adventure, the sense of discovery, wonder and kinship that he feels himself.

"The only way for me to convey the truth, beauty and drama of nature is to experience it and strive to understand it," maintains Fracé. That pursuit has taken him from the ice floes of Canada to the rain forests of Puerto Rico, from Alaskan peaks to African plains. For the past few years, he has focused largely on endangered species, wishing us to see them simply for what they are: "beautiful, significant creatures without which our world would be a much poorer place."
Diane M. Bolz

Size and power of bush elephants confront viewer in 1976 *Elephants at Kilimanjaro.* Tusks appear to jut off canvas.

Canadian lynx ventures out of cover to seek prey in *Radiant Moment.* Action is frozen in patterns of light on snow, fur.

Harp seal pups, hunted for their coveted white coats, bask in camouflage of native habitat in *Peace on Ice* (1990).

Fracé chose compelling hues of an Alaskan autumn in which to set majestic grizzly. Landscape echoes beauty, power of bear.

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City Interludes *January-April* Off-season tours of Paris, Prague, Tibet, Florence, Hong Kong, Venice, St. Petersburg, Edinburgh, Kyoto and Vienna.

NEW **Western Caribbean Cruise** *February 1-12*

Whale Watching in the Dominican Republic *February 6-16*

Far East Adventure *February 6-26* Singapore to Thailand.

The Island of Dominica *February 10-18*

Lapland Reindeer Safari *February 21-March 2*

Guatemala Adventure *February 23-March 8*

Patagonia to Rio Cruise *February 26-March 16* Aboard the *Illiria.*

Alpine Snow Train *March 4-16*

Australia and New Zealand *March 4-25*

NEW **From Singapore to India's Malabar Coast** *March 5-23*

Costa Rica *March 13-24*

NEW **Rio de Janeiro to Spain Cruise** *March 13-April 4* Aboard the *Illiria.*

NEW **China-Japan Cruise** *March 15-April 2* Aboard the *Royal Viking Queen.*

NEW **Central Mexico Archaeology** *March 17-29*

Bermuda *March 18-22 or April 1-5*

Copper Canyon (Mexico) *March 30-April 6 or April 15-22*

NEW **Crossroads of Civilization** *April 1-16* North Africa-Mediterranean cruise.

Madagascar *April 2-19*

Dutch Waterways Cruise *April 12-25*

Nile Cruise *April 12-29*

French Castles and Cathedrals *April 16-26*

Galápagos Islands *April 17-28* Aboard the *Isabela II.*

Morocco *April 17-May 1*

Italy Cruise *April 27-May 12* Aboard the *Regina Renaissance.*

Rhodes, Crete and Santorini *April 30-May 14*

NEW **Israel-Cyprus-Turkey-Greece Cruise** *April 3-May 17* Aboard the *Illiria.*

Countryside Tours *May-October* Relaxing sojourns in France, England, Italy, Austria, Switzerland, Czechoslovakia, Ireland and Mexico.

Sicily and Southern Italy *May 4-19*

Western Turkey *May 11-26*

Maritime England *June 1-15*

Odyssey of Flight *June 3-14* Paris Air Show.

NEW **Bohemia and Moravia** *June 6-20*

Inside Ireland *June 7-18*

Poland *June 9-22*

England by Train *June 14-25*

Musical White Nights (Russia and Finland) *July 3-15*

Iceland Adventure *July 11-28*

Switzerland by Train *August 19-31*

Smithsonian Odyssey Tours

Low-cost tours *1993* Great Britain, France, Italy, Sicily-Malta, Greece, Spain-Morocco, Israel-Egypt, Belize-Guatemala and the United States. Six tours to Costa Rica will also be offered in 1993. For an Odyssey brochure only, call 1-800-932-8287.

Domestic Study Tours

Smithsonian "Anytime" Weekend (Washington, D.C.) Prices begin at $99 per person for a two-night package.

Yellowstone *February 13-20* Cross-country skiing.

Baja Whale Watch *February 25-March 5*

Virgin Islands Cruise *February 27-March 6*

New Orleans/Natchez *February 28-March 7*

NEW **New York: Potpourri of Arts** *March 4-7*

Gulf Cruise: Miami to New Orleans *March 13-27* For Contributing Members.

NEW **South Florida Birds** *March 20-27*

Sea of Cortez Cruise *March 20-27*

Hawaii Camping *March 20-April 3*

Savannah-Charleston *March 26-April 2*

Death Valley *April 4-13*

Arizona in Spring *April 13-21*

Texas African Safari *April 14-18 or April 28-May 2*

Grand Canyon Weekend *April 22-25*

Footsteps of Coronado (New Mexico) *April 25-May 1*

NEW **Four Corners Archaeology (Colorado)** *April 30-May 7*

Hudson River Historic Homes *May*

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NEW **Delta Queen** *May 8-21* Pittsburgh to New Orleans.

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Writers and Key West (Florida) *March 28-April 1*

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The New Astronomies (Tucson) *May 16-21*

American Popular Song and Jazz (San Francisco) *May 21-25*

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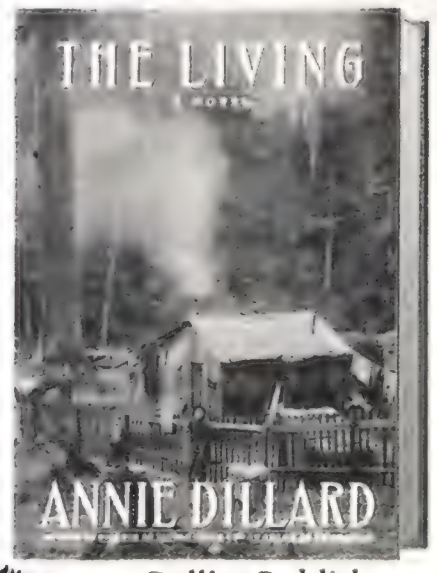

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By Donald Dale Jackson

One man's bah-humbugs are another's delights

My friend Boris checked in the other day with his annual bah-humbug bulletin. Boris has been miffed about almost everything for several years now, and he's not too proud to tell us about it. Sure, he's got some good reasons—he lives alone, his health is shaky, he's periodically out of work. But the fact is, Boris was a gloom merchant even when times were flush.

In a strange way, Boris' doomsday dispatches always improve my worldview. Loath as I am to be unduly perky, I have to admit that his unrelieved negativism accentuates the positives in my own line of sight. He forces me to contemplate the case for life, so to speak, and to meditate gingerly on the relationships, sensations and experiences that make it, in my opinion at least, worth pursuing. Stay with me a minute; I promise not to get overly earnest or maudlin.

Since everything I do or think eventually finds its way onto a list, and since this is supposed to be the season for list-making anyway, I decided to prepare a list of what I called "Things I Enjoy" and to send it off to Boris. I suppose I thought it might remind him of a pleasure or two he might have overlooked in his relentless shuffle along the bleak side. I won't burden you with everything on my list, but I do want to recount some of the items and Boris' reaction to them.

These he crossed out without comment: tropical skies, tacos, cats, skiing, short brunettes, country music, eagles, old hotels, woodpeckers, suede, North Carolina, musical comedies, Ping-Pong, cabins, night baseball, artichokes, canoes, old churches, Maine, banjos, fruit stands, parades, porches, lemons, Scots, collies, diner breakfasts, motor scooters, golf courses (especially at sunrise), 6-year-olds, most kinds of moss, storms, New York waitresses, daiquiris, old postcards, fiddling.

He agreed with me on these: mountain lakes, chocolate-chip cookies, libraries, travel folders, maps, binoculars, October, hardware stores, Alps and inns.

Boris accepted some other entries with certain emendations: in the case of snow and rain, for example, both of which I embrace without qualification, he noted that he liked them "only in their scientific manifestation," whatever that means. I had rivers on my list; Boris allowed that some were all right (especially at twilight). I included bridges. He remarked that they were "nice to look at, but not to be on." Where I listed bands, he noted "college songs" in the margin. I cherish village greens; Boris, I was pleased to see, admires "any green fields." I expressed an indiscriminate approval of ships; he limited his to ocean liners. I included strawberries, raspberries and blackberries; "stick in teeth" was Boris' reaction.

Other items on my life-affirming roster he rejected outright. Next to my mention of new cars he wrote, "hate cars." Beside my listing of tennis tournaments he wrote "yawn." Old graveyards and sunsets, he said, were too sad; Western shirts were too loud, wool shirts were too itchy. Next to my entry of hiking he opted for "sitting in a rocking chair." Where I listed biographies and Woody Allen, he voted for histories and Robert Benchley.

Boris appended his own small list to the back of mine. The first item was reading about scientific mysteries, "none of which I'll ever understand." Daydreaming was his second entry, nostalgia was third, and listening to the radio was fourth. His fifth positive was a certain beverage which gives him comfort and joy in judicious doses. His sixth and last was "wondering, worrying, pondering—the why of it all."

I was glad to see his last entry because I figure that if he's still wondering and worrying, at least he's still interested. But as I said, I think I got more out of this experiment in positivist therapy than Boris did. It made me want to rush off instantly for Maine, North Carolina and the tropics, to prowl old hotels and churches and graveyards, and to overdose on berries, artichokes and tacos.

I found it reinvigorating to remind myself of the reasons I've found for getting up each morning without feeling excessively defensive. I haven't mentioned others, like a few proper names, because I promised that I would not get earnest or maudlin.

At bottom, I suspect that the roots of Boris' gloom reach into that neighborhood—there aren't any proper names in his life. I hope he finds a few—and it doesn't matter, Boris, how bloody old you are—and I hope his list lengthens a bit. I'm also glad that we have some joys in common. It sounds to me like we ought to eyeball a few travel folders and maps, stock up on chocolate-chip cookies and make an October trip together to an inn on an Alpine lake. Who knows? Maybe there will even be a hardware store nearby.

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